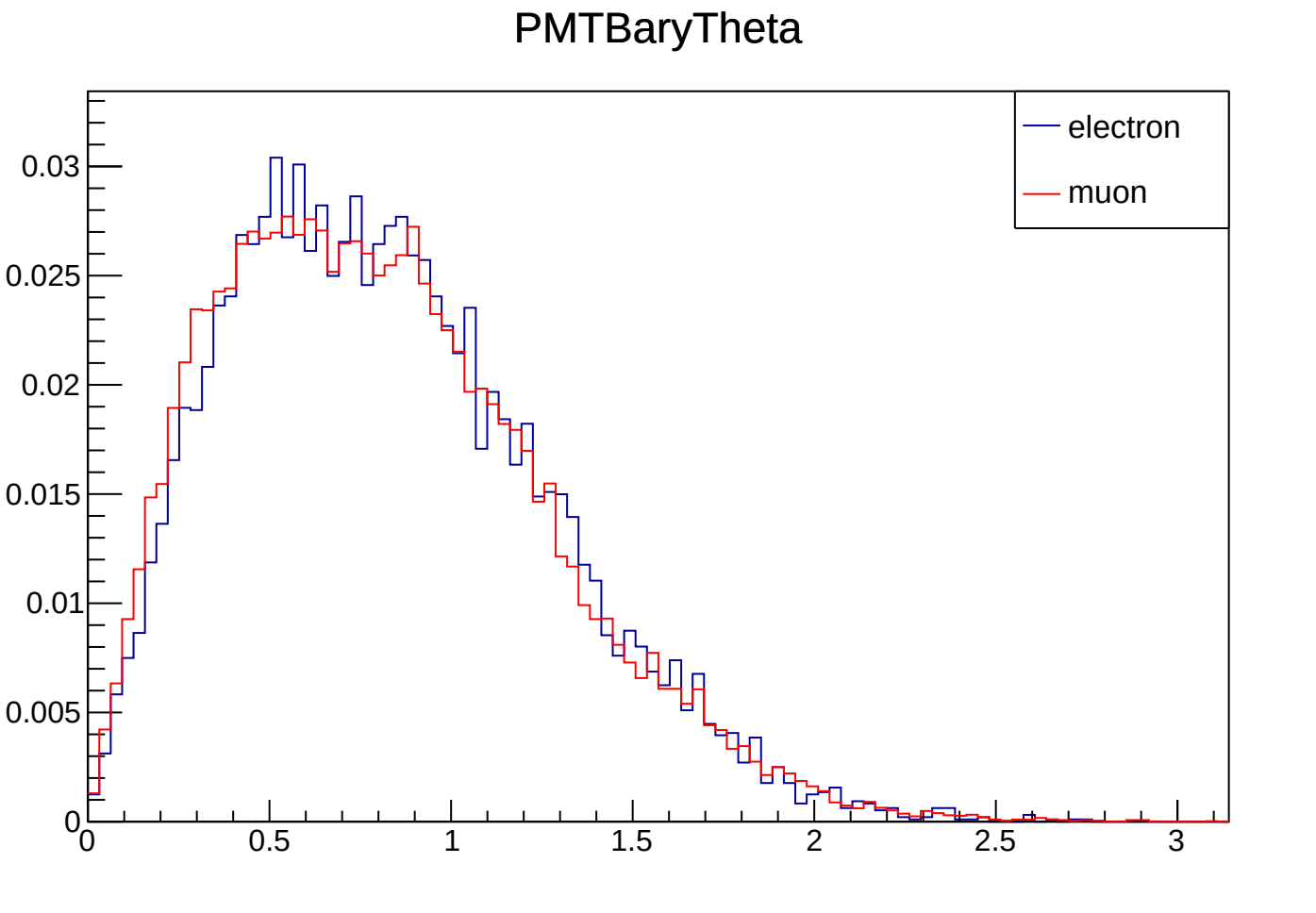
PMTBaryTheta
electron
muon
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0.02
0.015
0.01
0.005
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0.5
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1.5
2
2.5
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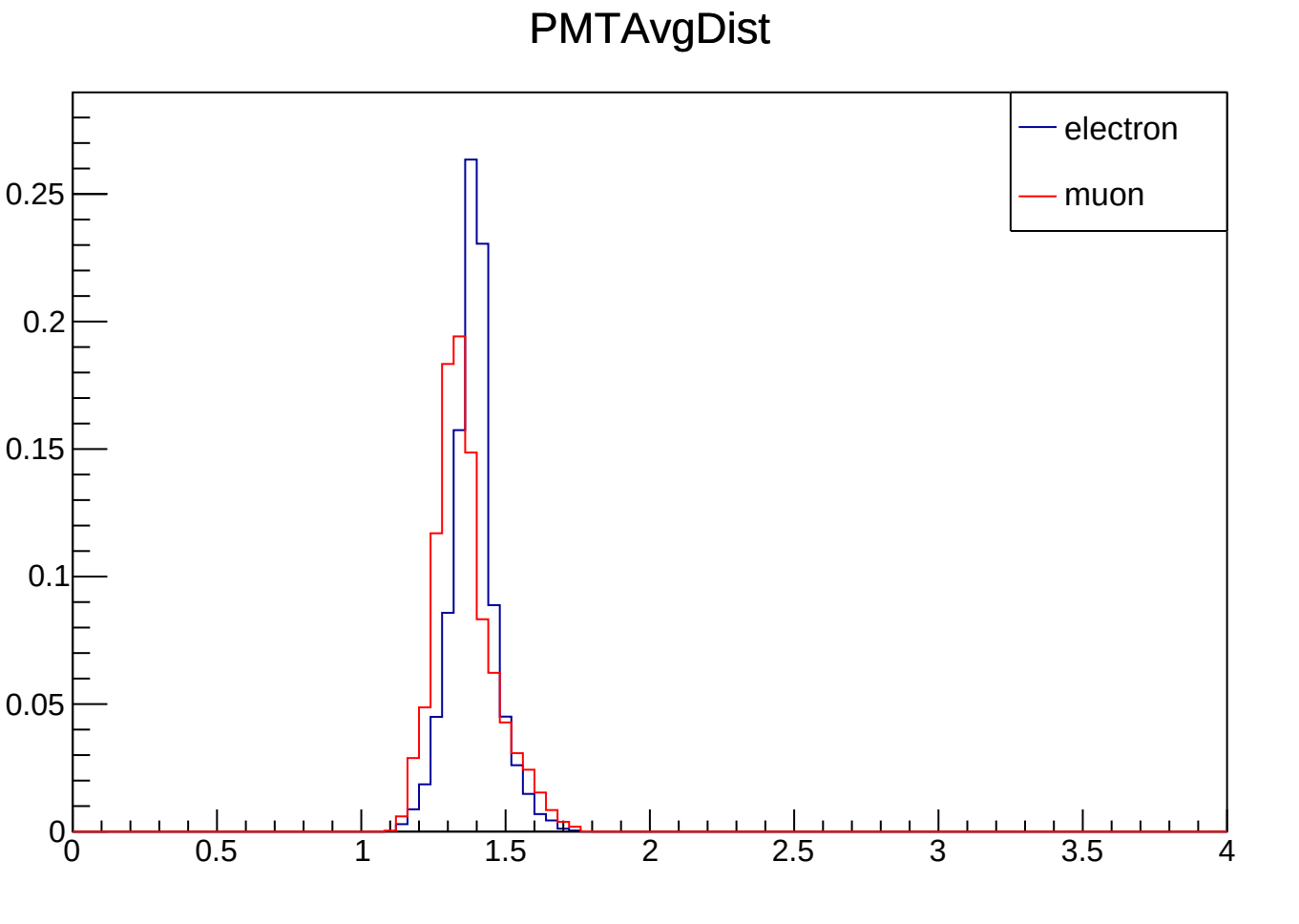
PMTAvgDist
electron
muon
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0.1
0.05
0
0
0.5
1
1.5
2
2.5
3
3.5
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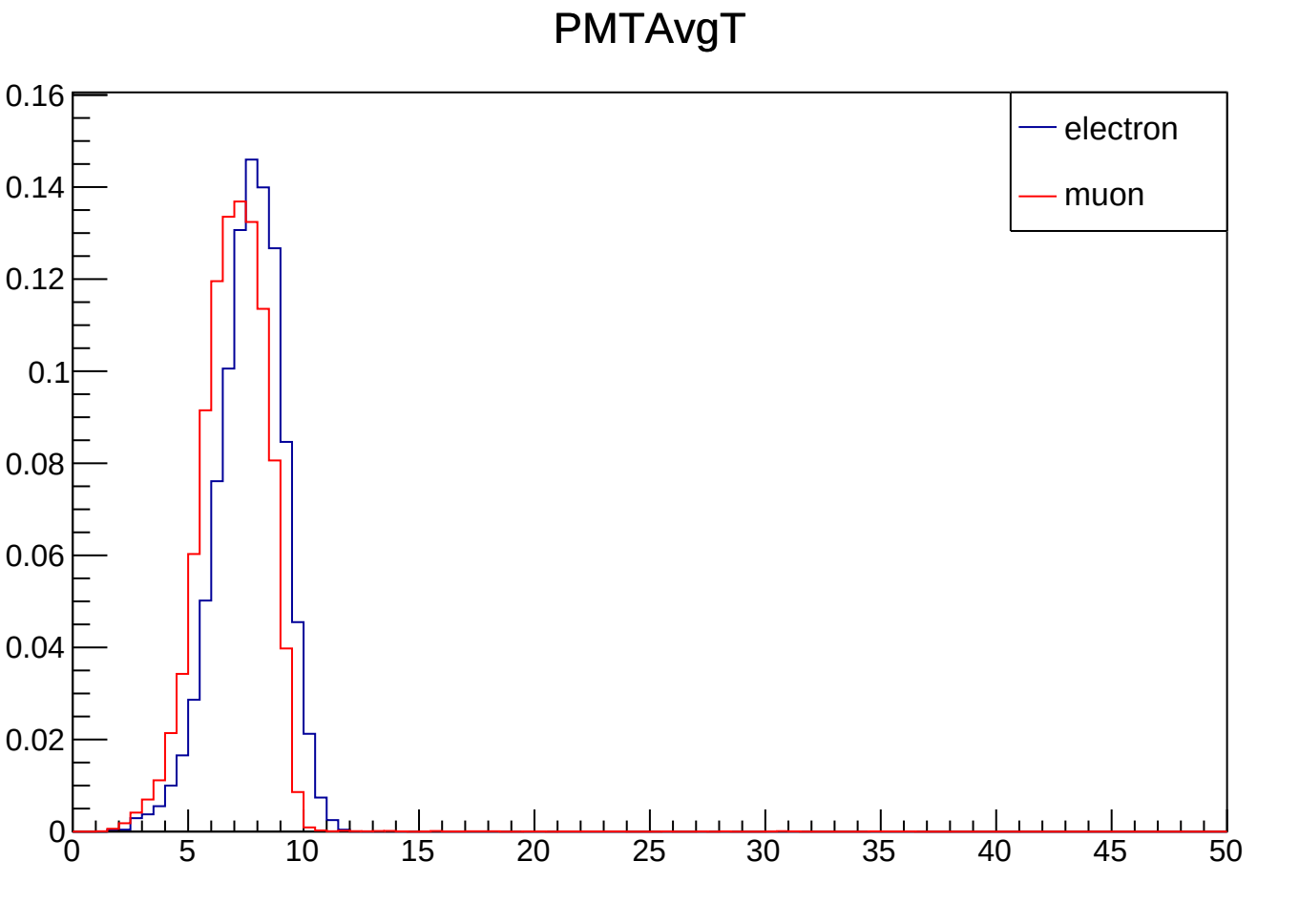
PMTAvgT
0.16
0.14
0.12
0.1
0.08
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0.04
0.02
0
0
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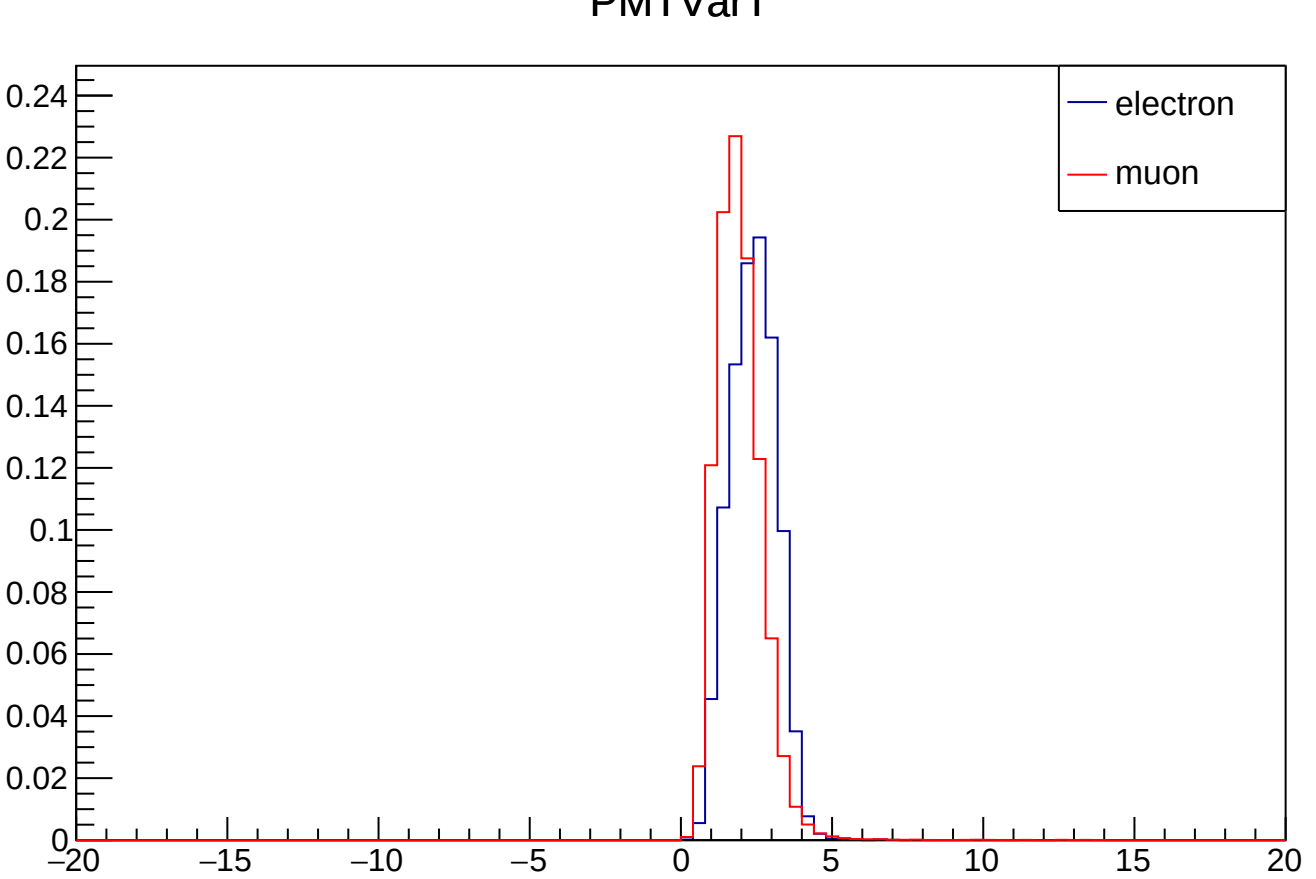
20
25
30
35
40
45
50
electron
muon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electron
muon
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0.18
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0.14
0.12
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0.06
0.04
0.02
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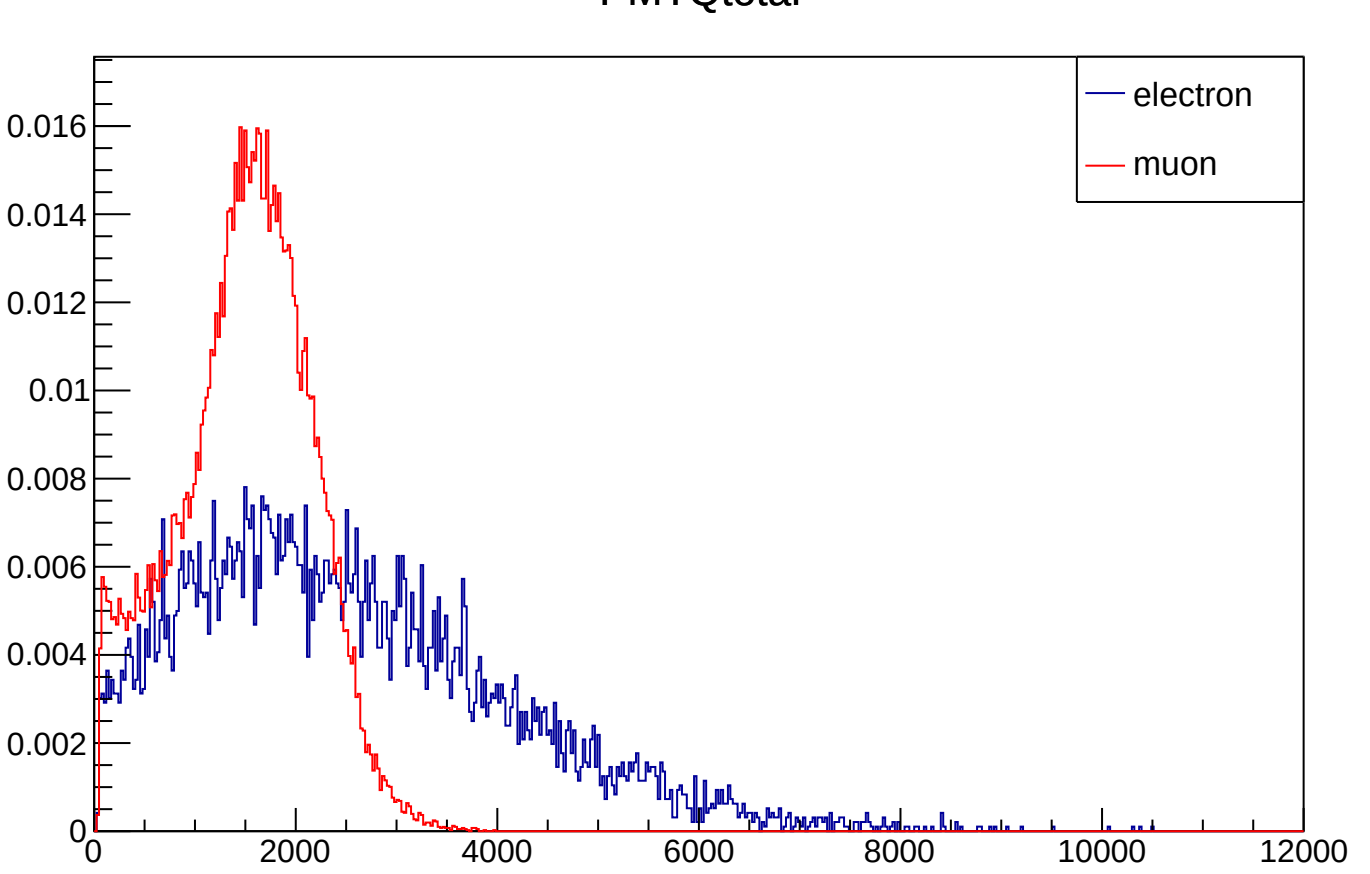
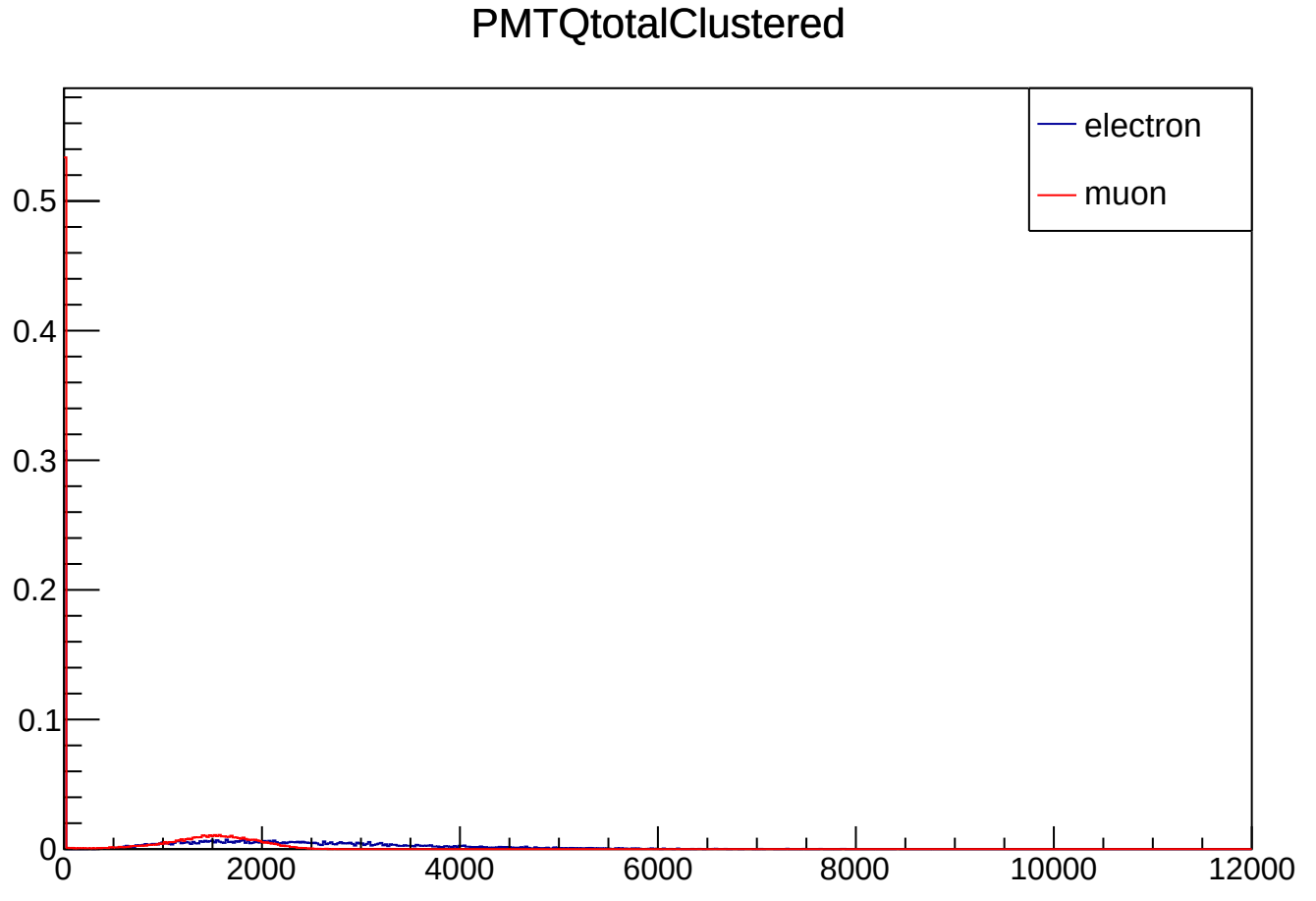
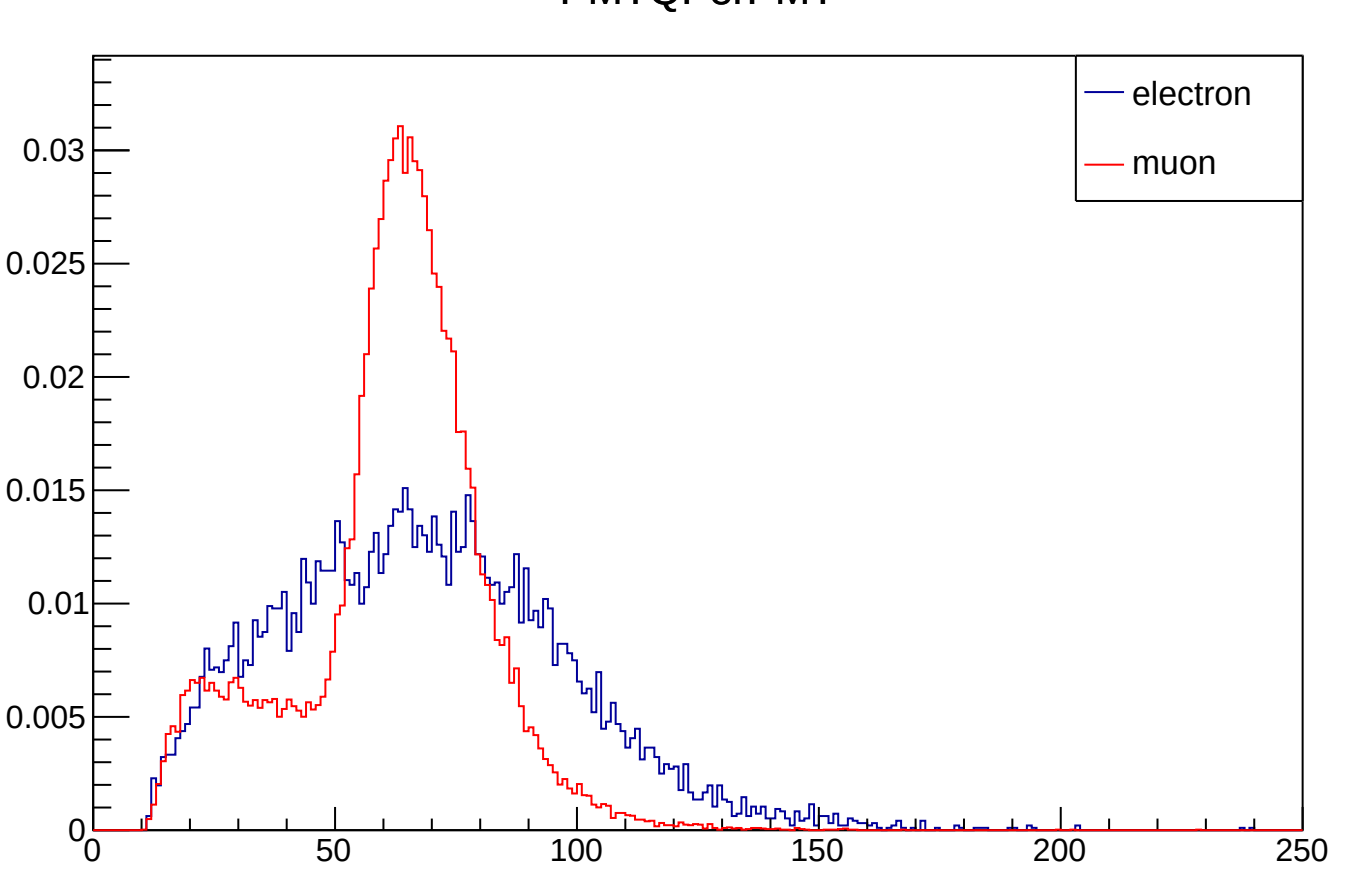
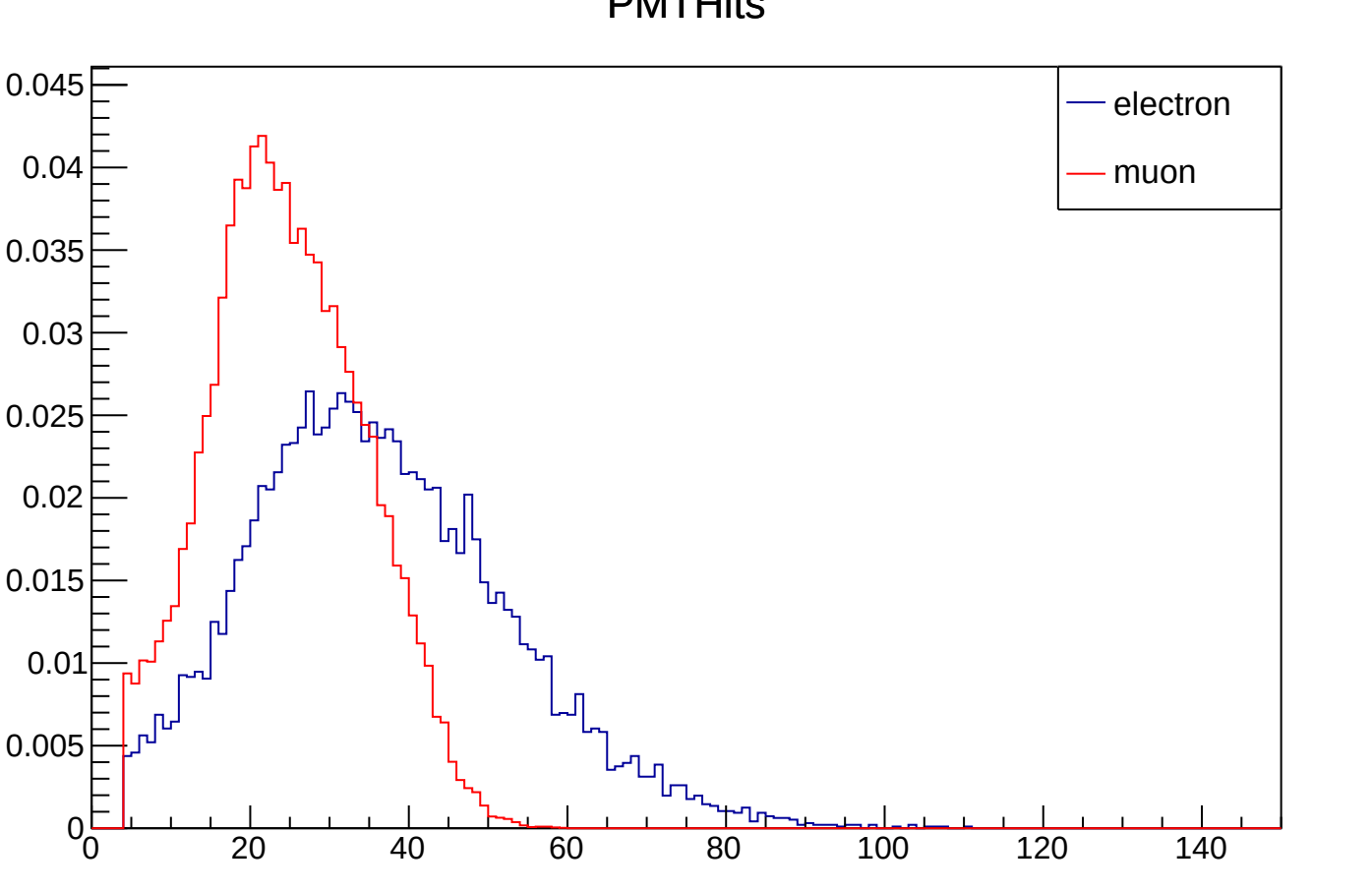
−10
−5
0
5
10
15
20


PMTQtotal
electron
muon
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
0
2000
4000
6000
8000
10000
12000


PMTQtotalClustered
electron
muon
0.5
0.4
0.3
0.2
0.1
0
0
2000
4000
6000
8000
10000
12000


PMTQPerPMT
electron
muon
0.03
0.025
0.02
0.015
0.01
0.005
0
0
50
100
150
200
250


PMTHits
electron
muon
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
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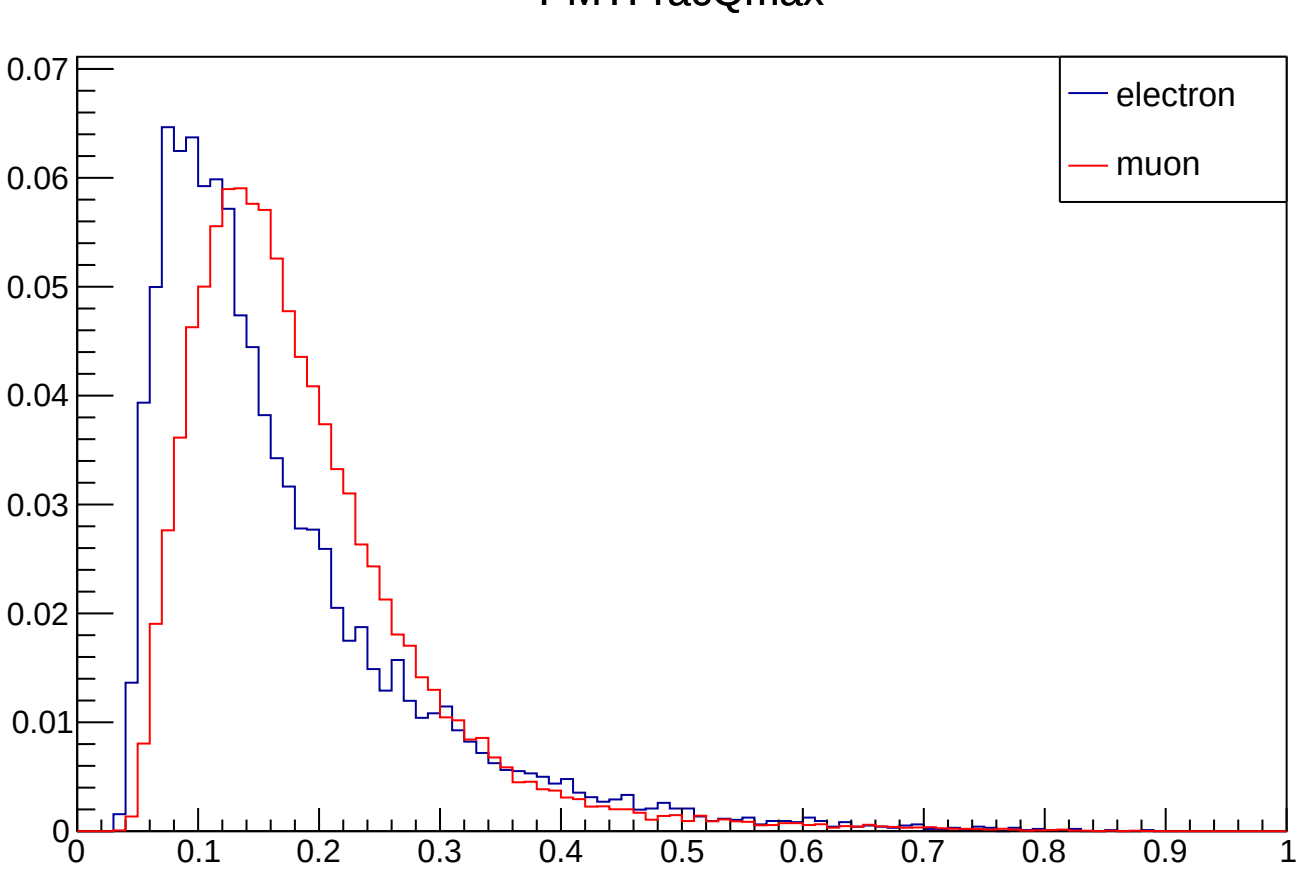
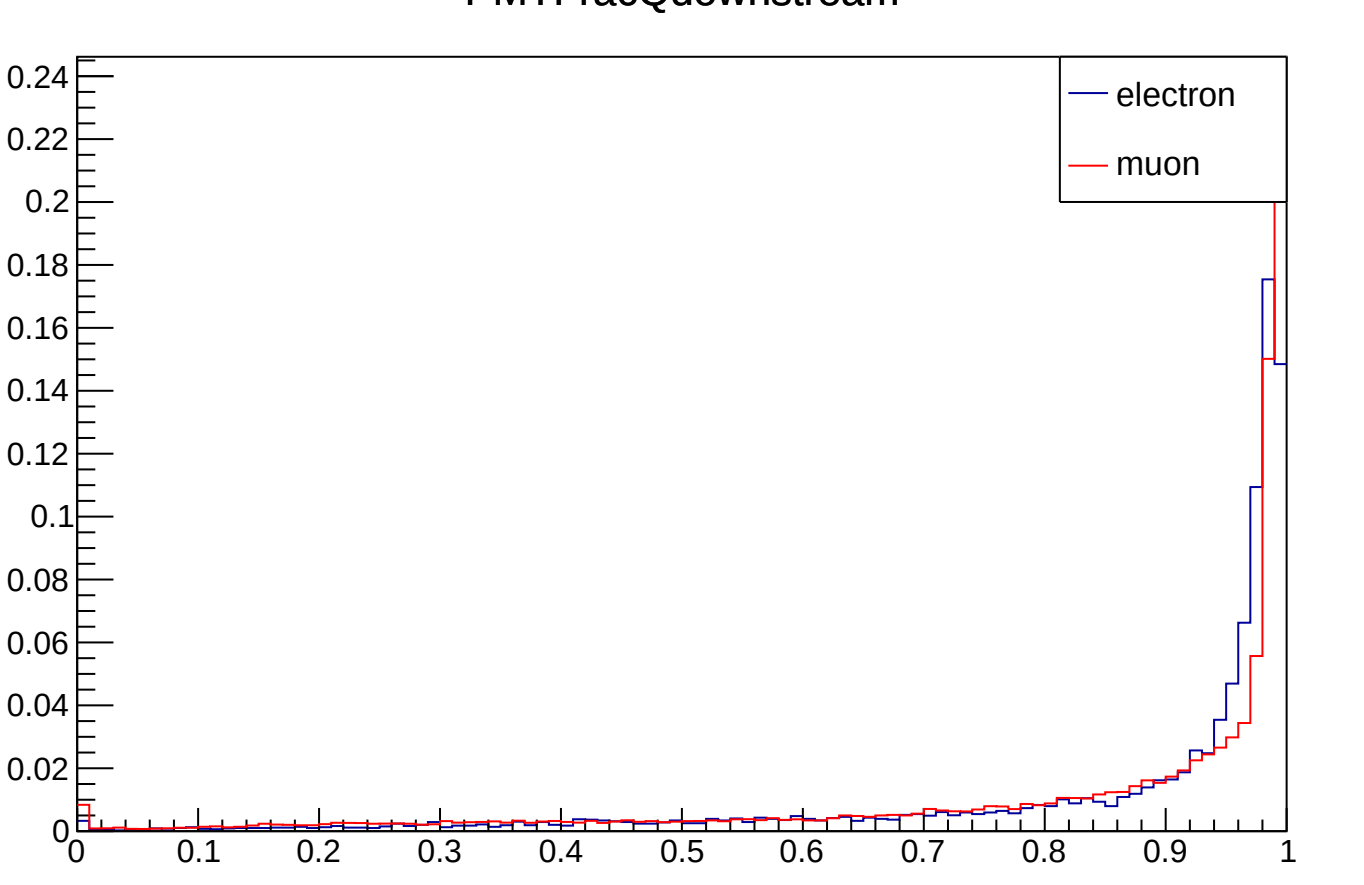
0
20
40
60
80
100
120
140


PMTFracQmax
electron
muon
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTFracQdownstream
electron
muon
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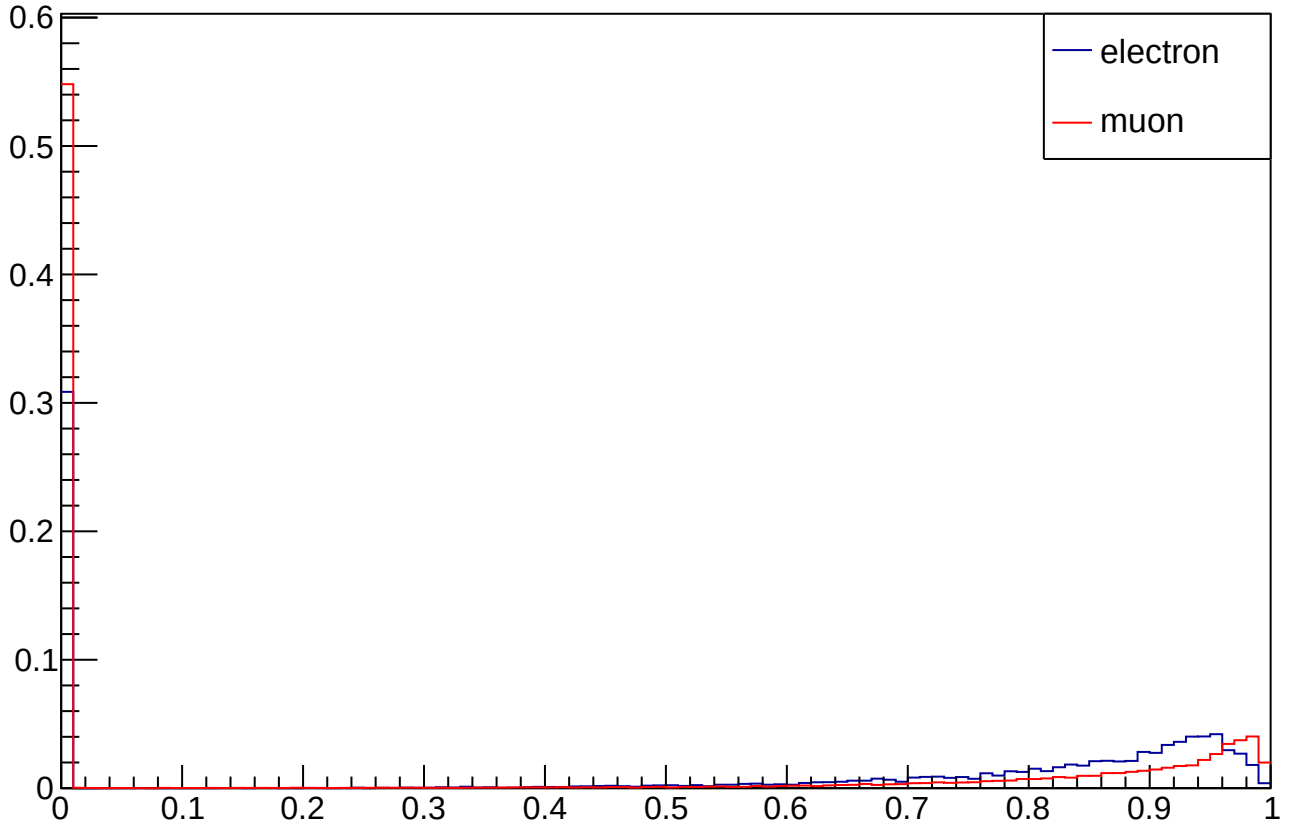
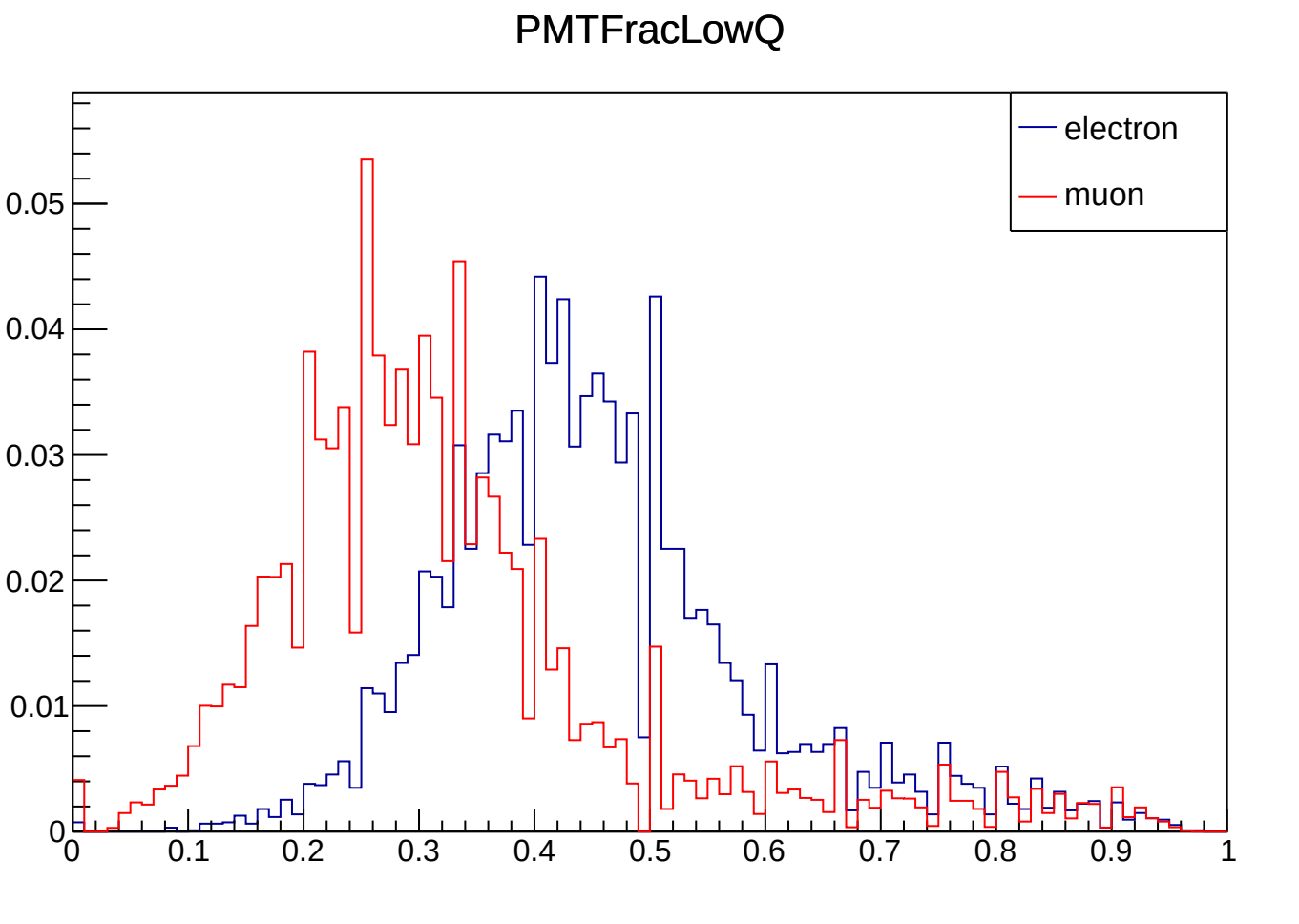
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTFracClustered
electron
muon
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTFracLowQ
electron
muon
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0.04
0.03
0.02
0.01
0
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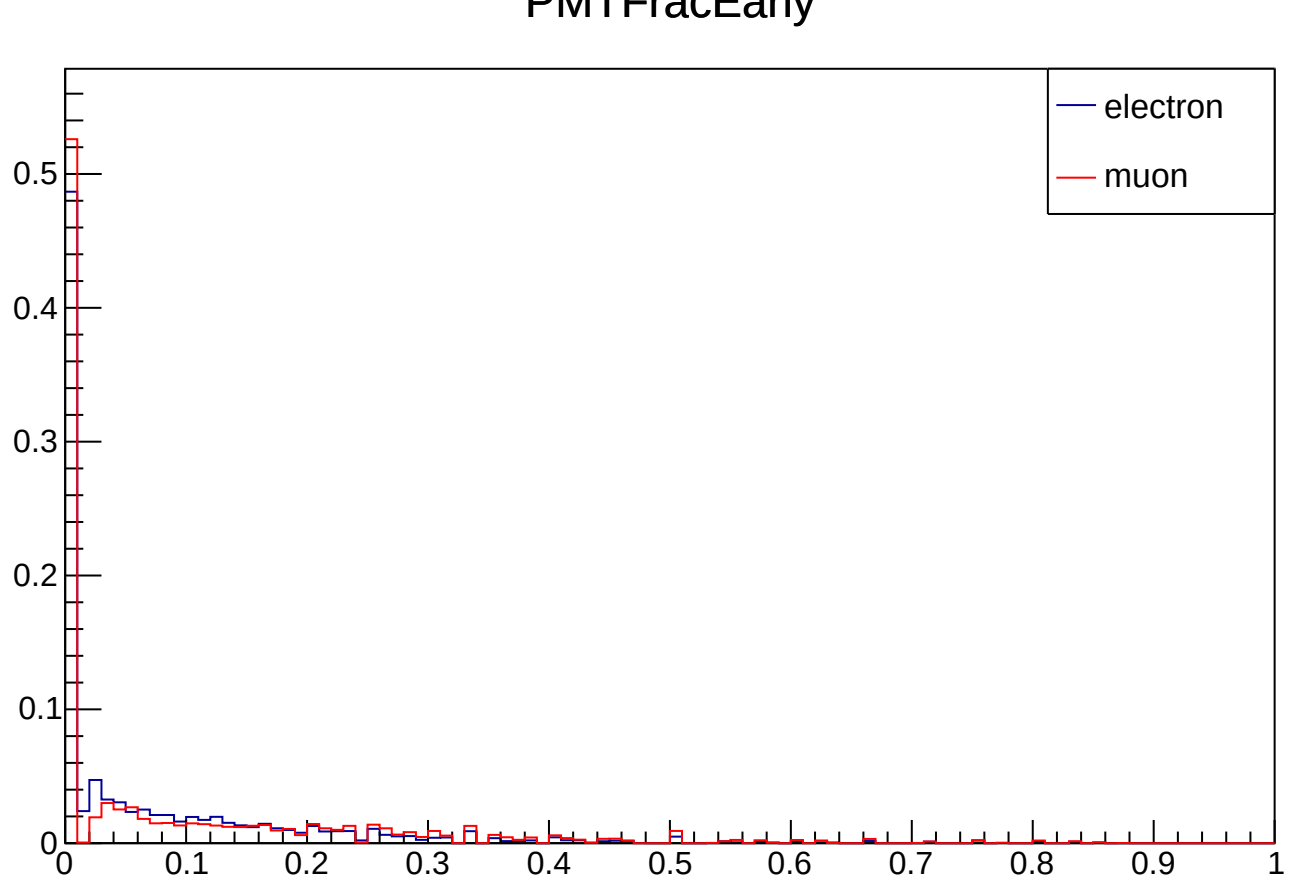
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTFracEarly
electron
muon
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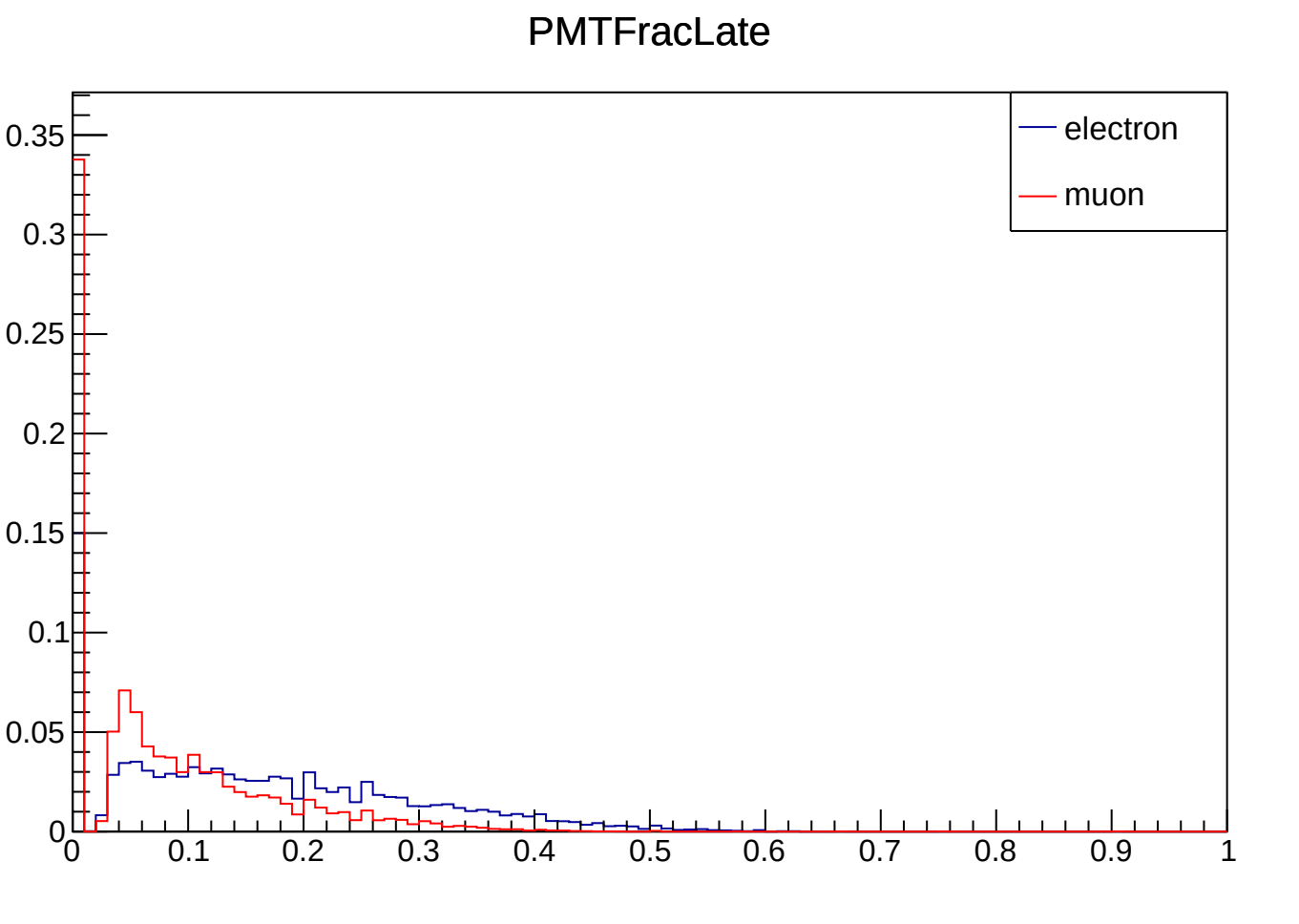
0.4
0.3
0.2
0.1
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTFracLate
electron
muon
0.35
0.3
0.25
0.2
0.15
0.1
0.05
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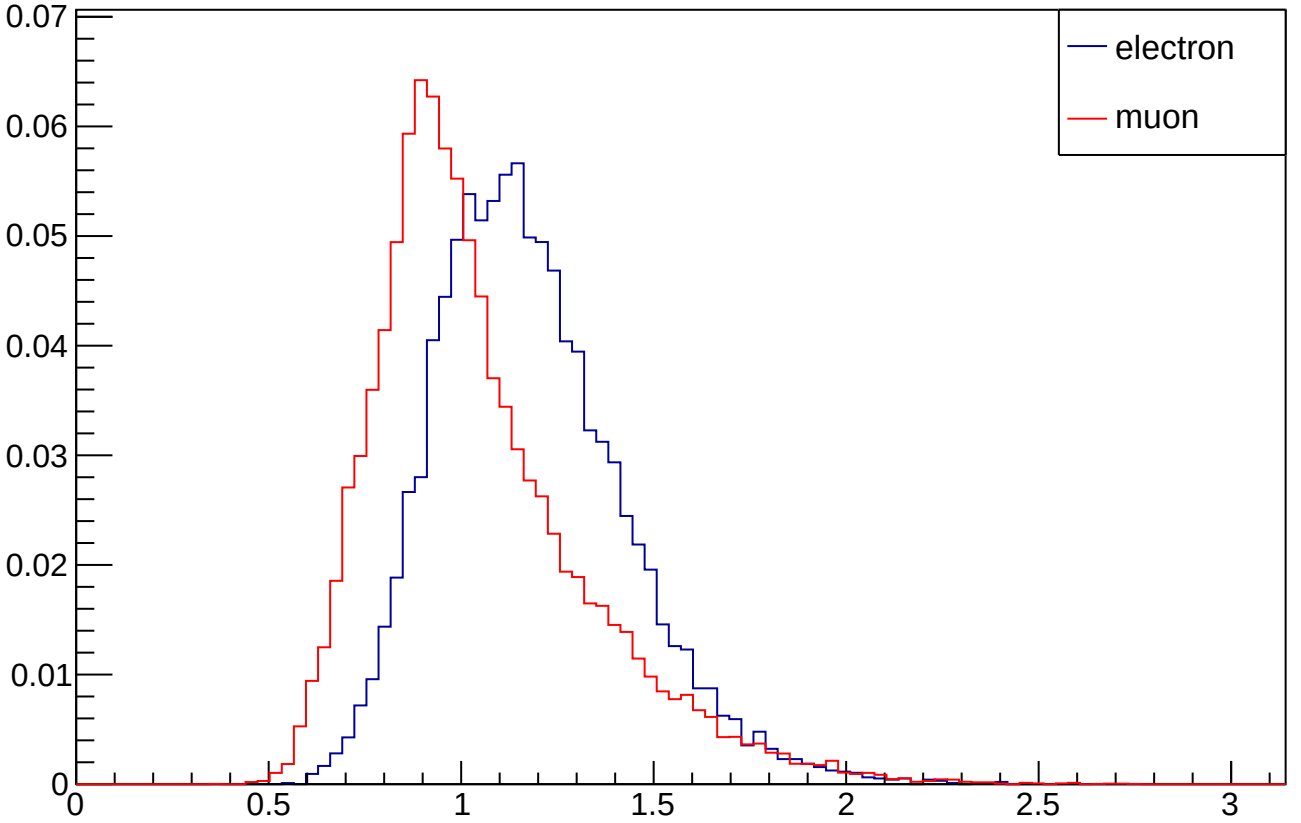
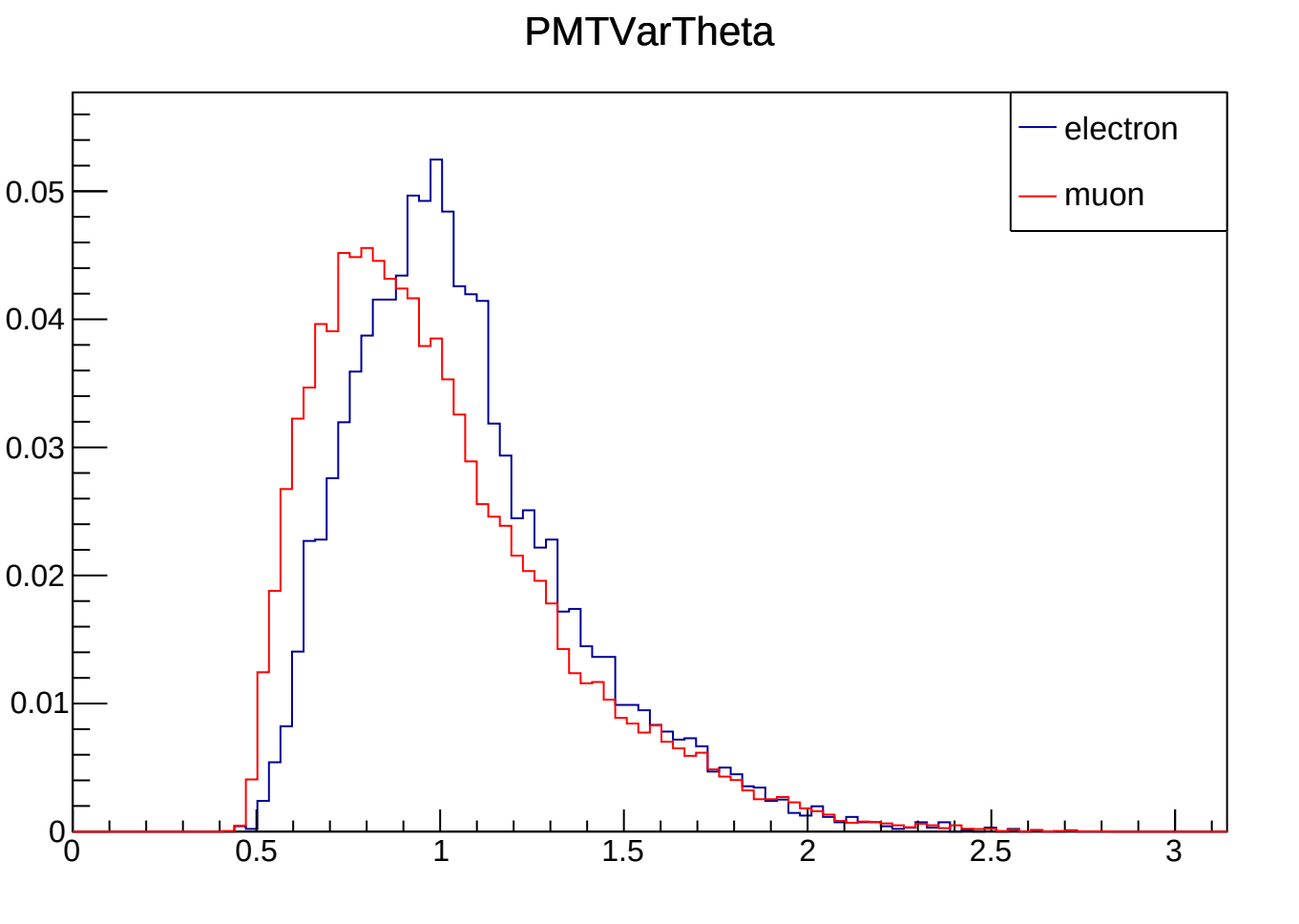
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTRMSTheta
electron
muon
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
0.5
1
1.5
2
2.5
3


PMTVarTheta
electron
muon
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0.04
0.03
0.02
0.01
0
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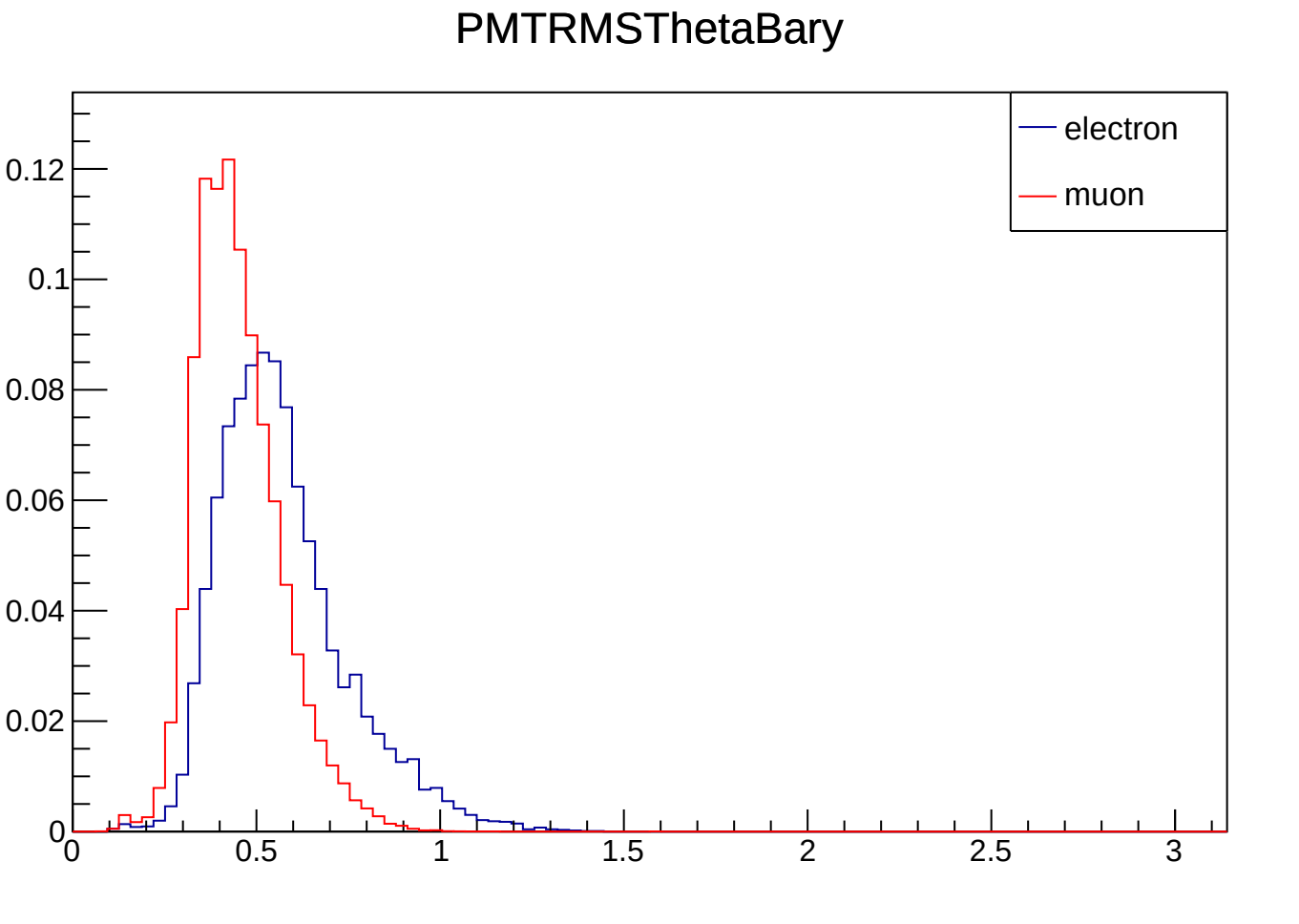
0.5
1
1.5
2
2.5
3


PMTRMSThetaBary
electron
muon
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0.08
0.06
0.04
0.02
0
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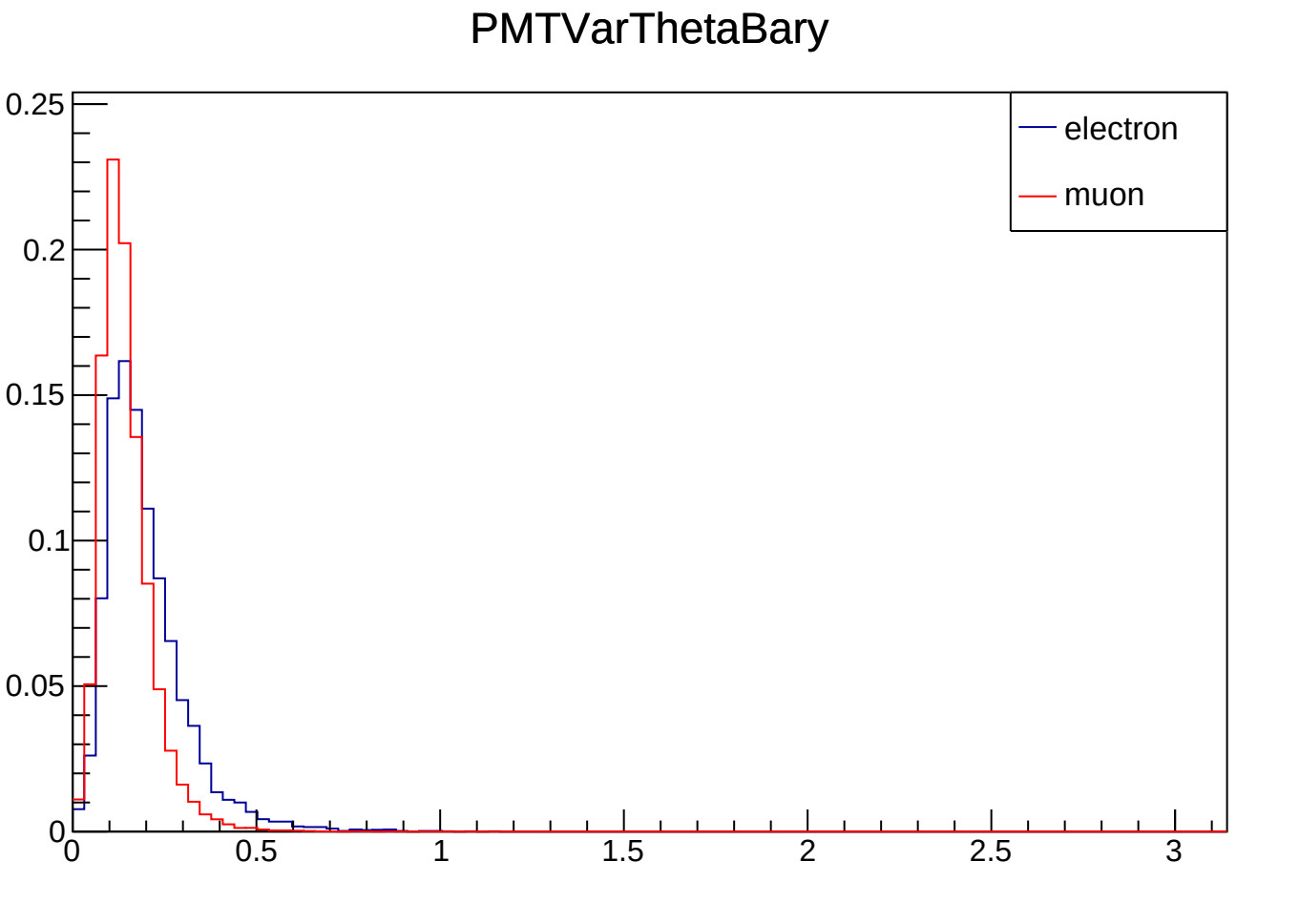
0.5
1
1.5
2
2.5
3


PMTVarThetaBary
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0.2
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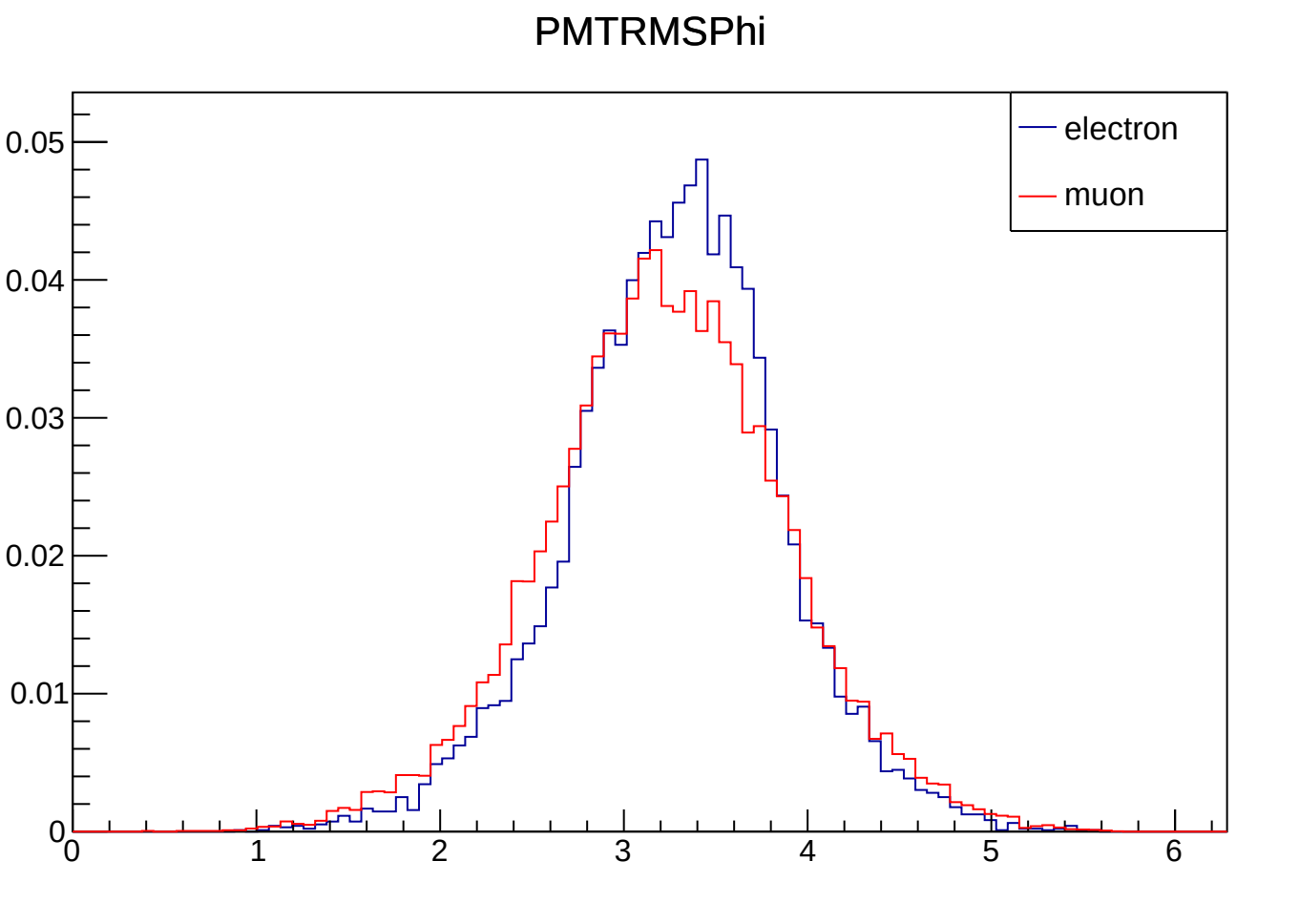
0.1
0.05
0
0
0.5
1
1.5
2
2.5
3
electron
muon


PMTRMSPhi
electron
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0.03
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0.01
0
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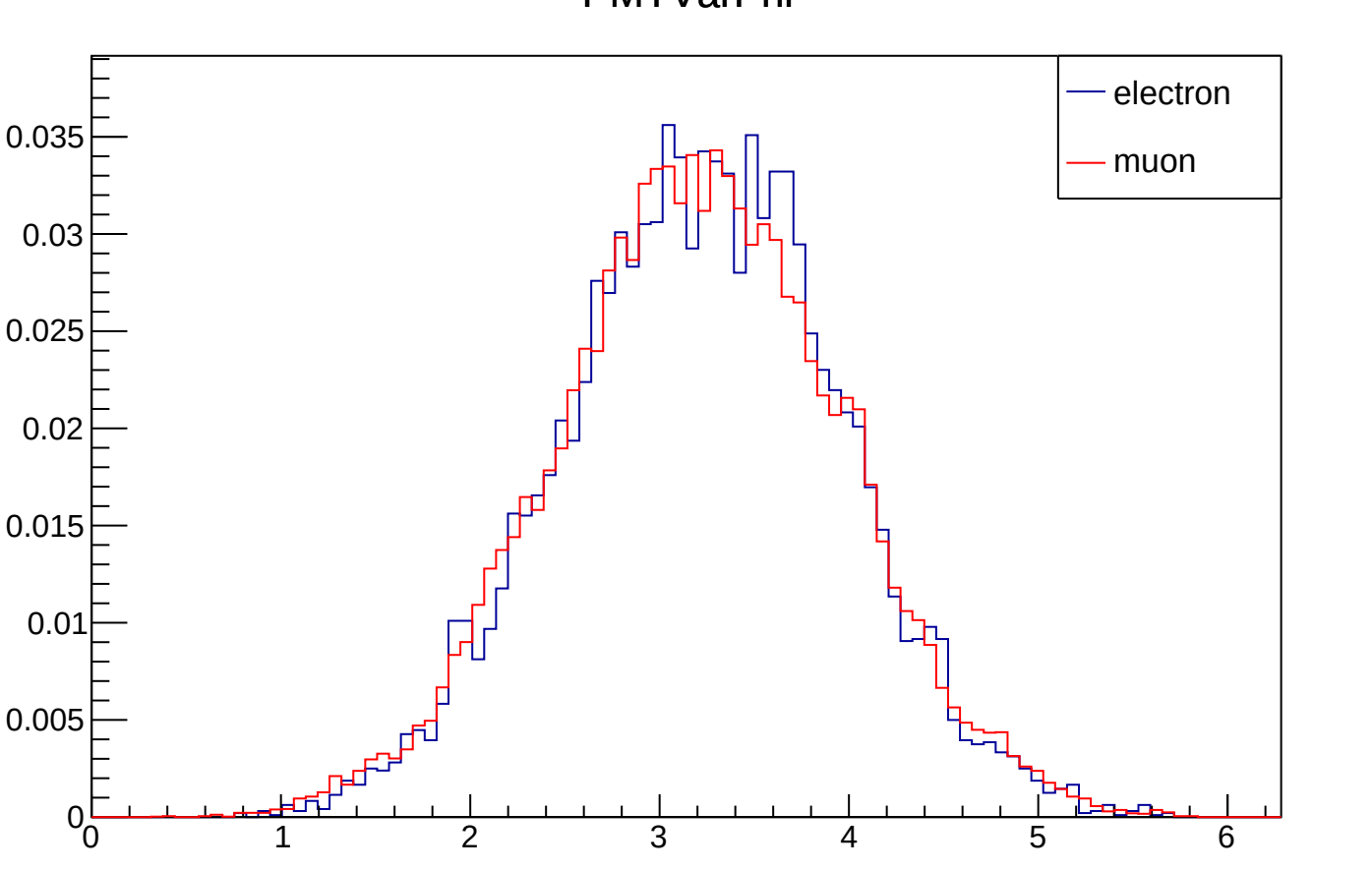
6


PMTVarPhi
electron
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0.025
0.02
0.015
0.01
0.005
0
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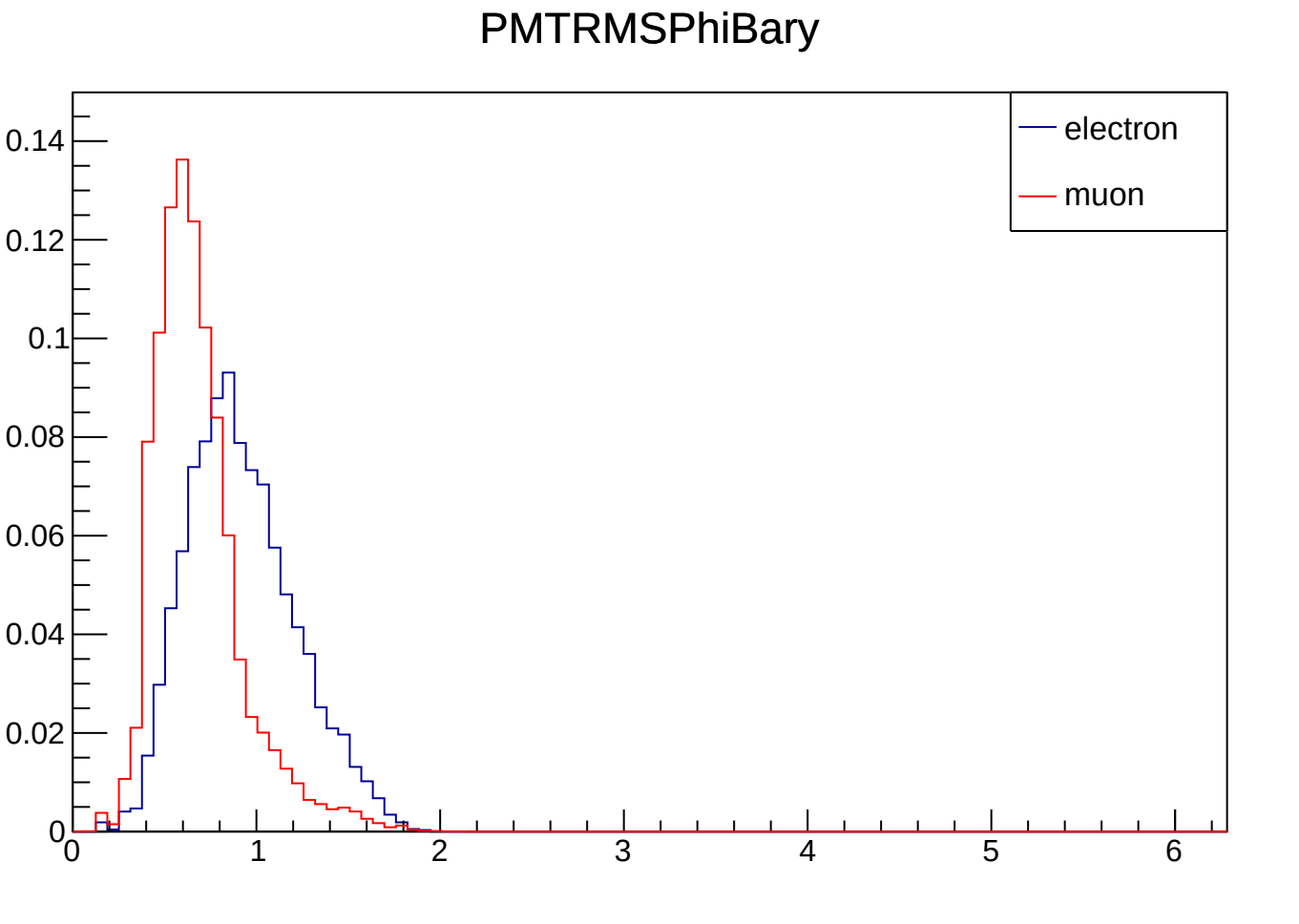
3
4
5
6


PMTRMSPhiBary
electron
muon
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0.1
0.08
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0.04
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0
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3
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5
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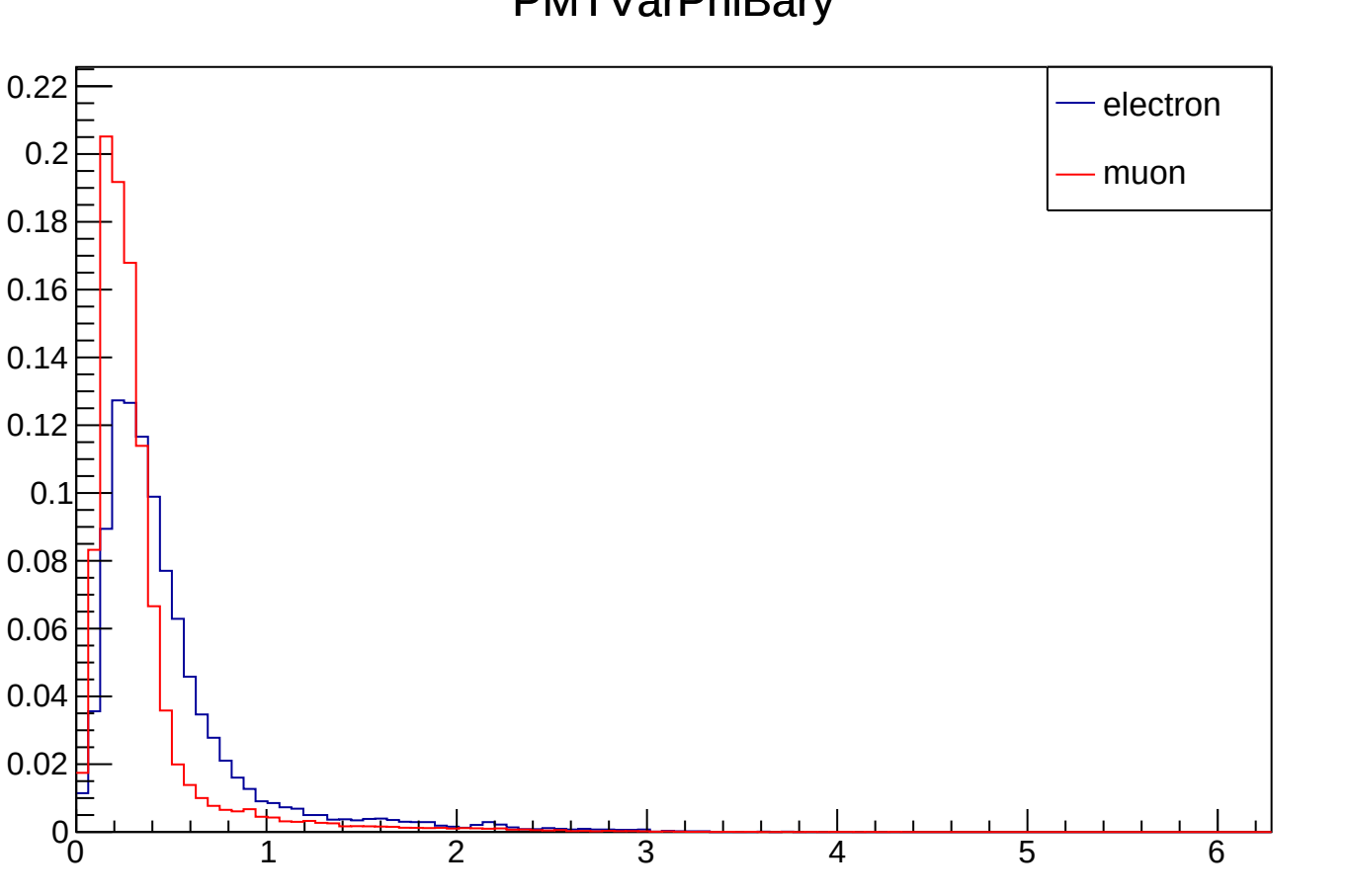
PMTVarPhiBary
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muon
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0.18
0.16
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0.1
0.08
0.06
0.04
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0
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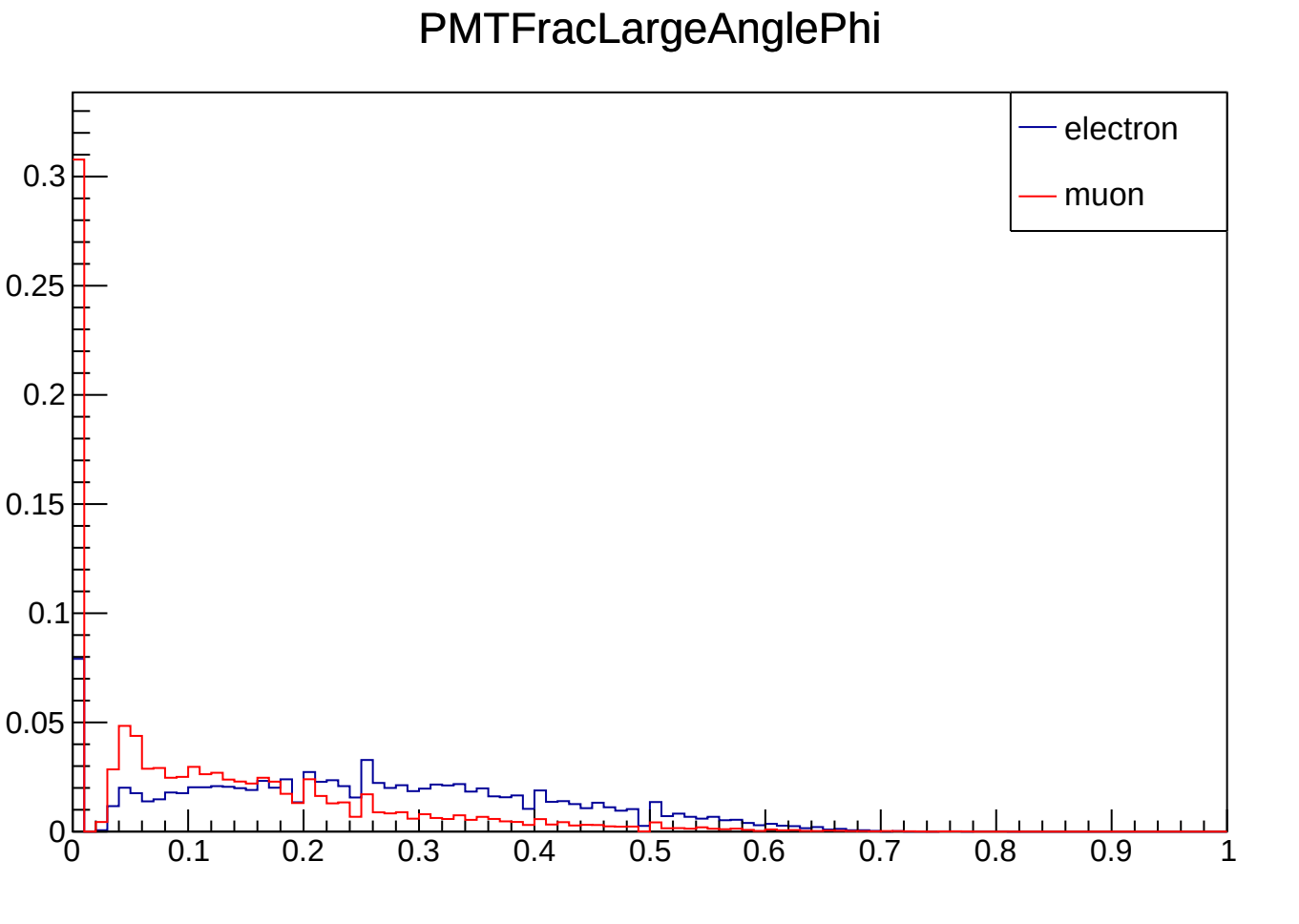
3
4
5
6


PMTFracLargeAnglePhi
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muon
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0.2
0.15
0.1
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0.2
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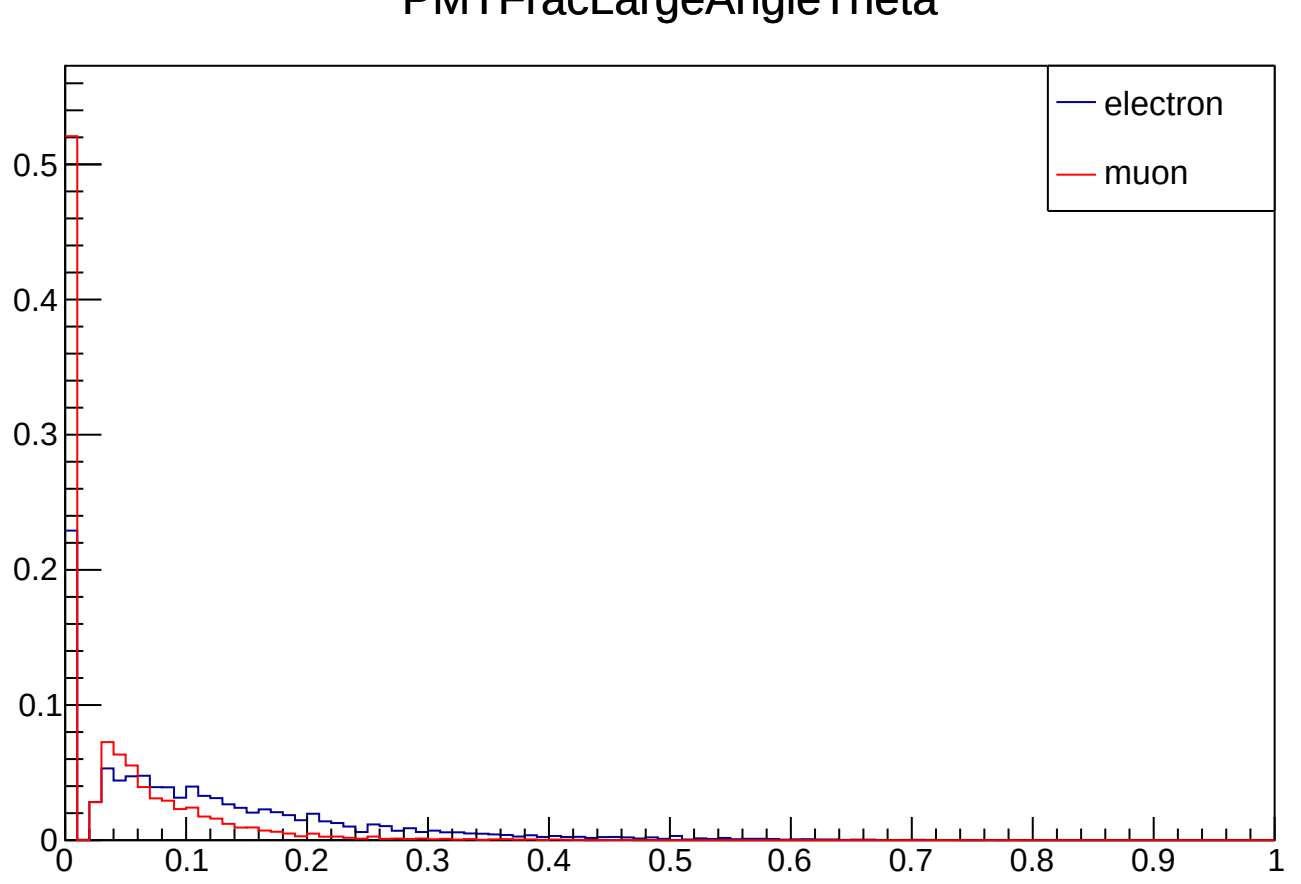
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTFracLargeAngleTheta
electron
muon
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0.4
0.3
0.2
0.1
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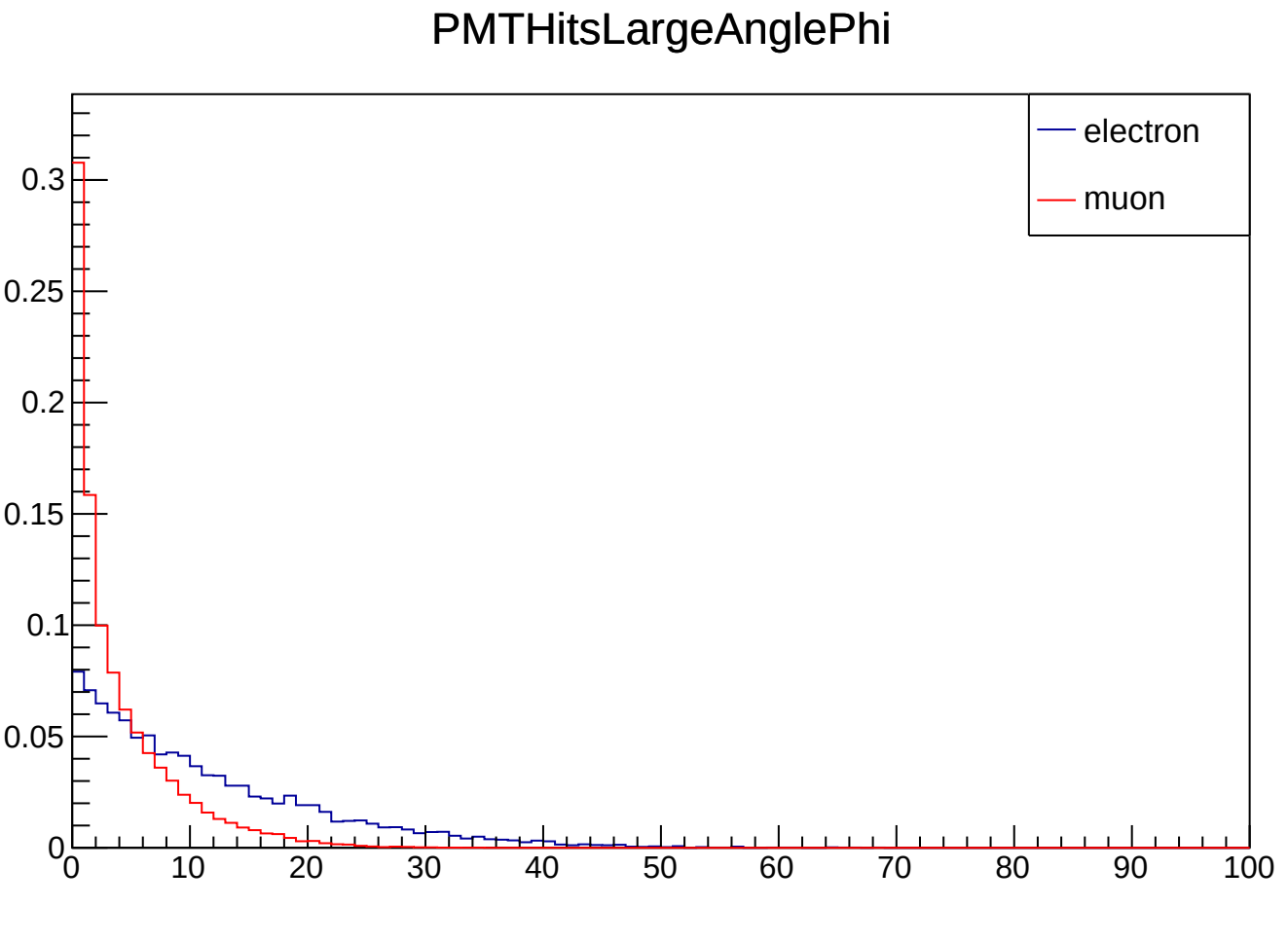
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1


PMTHitsLargeAnglePhi
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muon
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0.2
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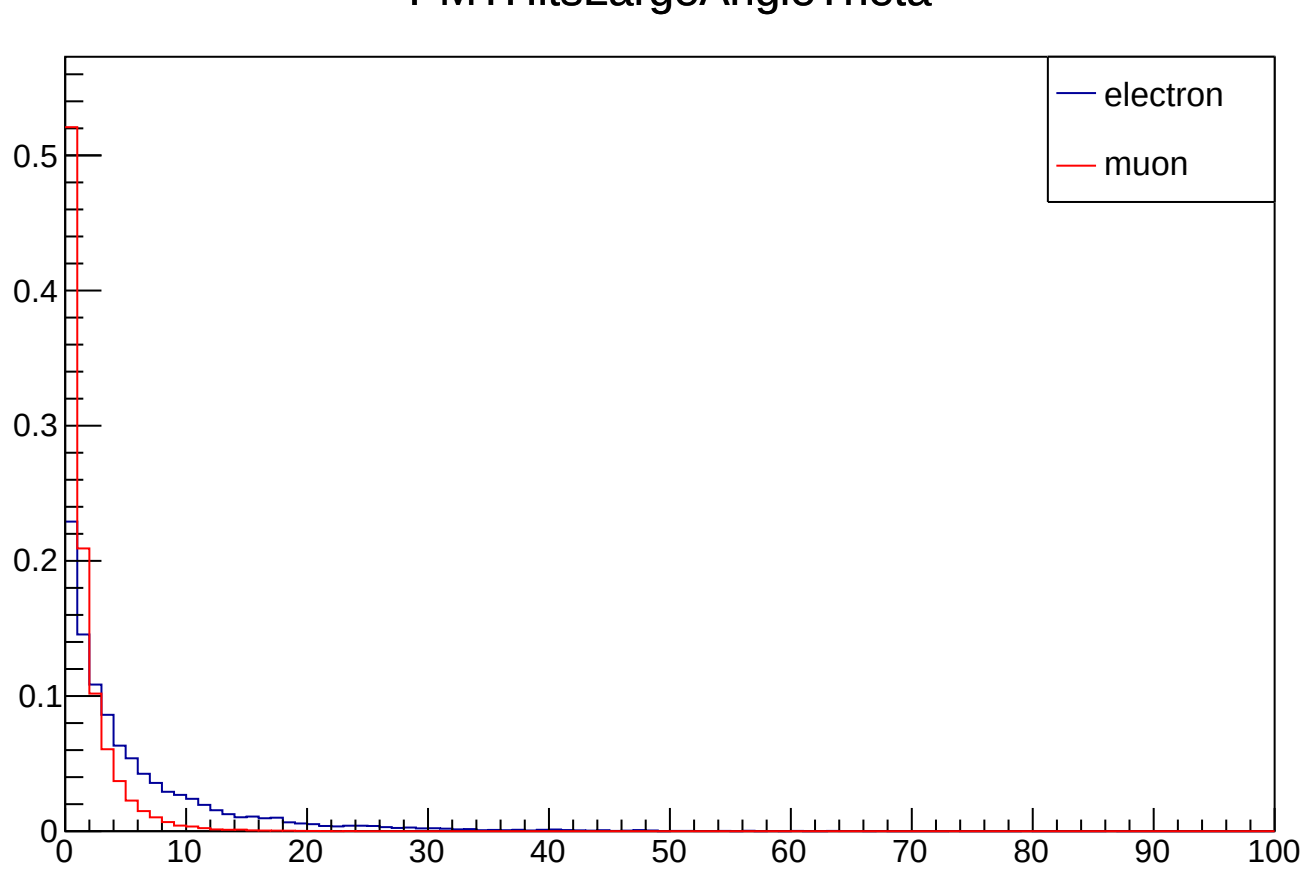
0.1
0.05
0
0
10
20
30
40
50
60
70
80
90
100


PMTHitsLargeAngleTheta
electron
muon
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0.2
0.1
0
0
10
20
30
40
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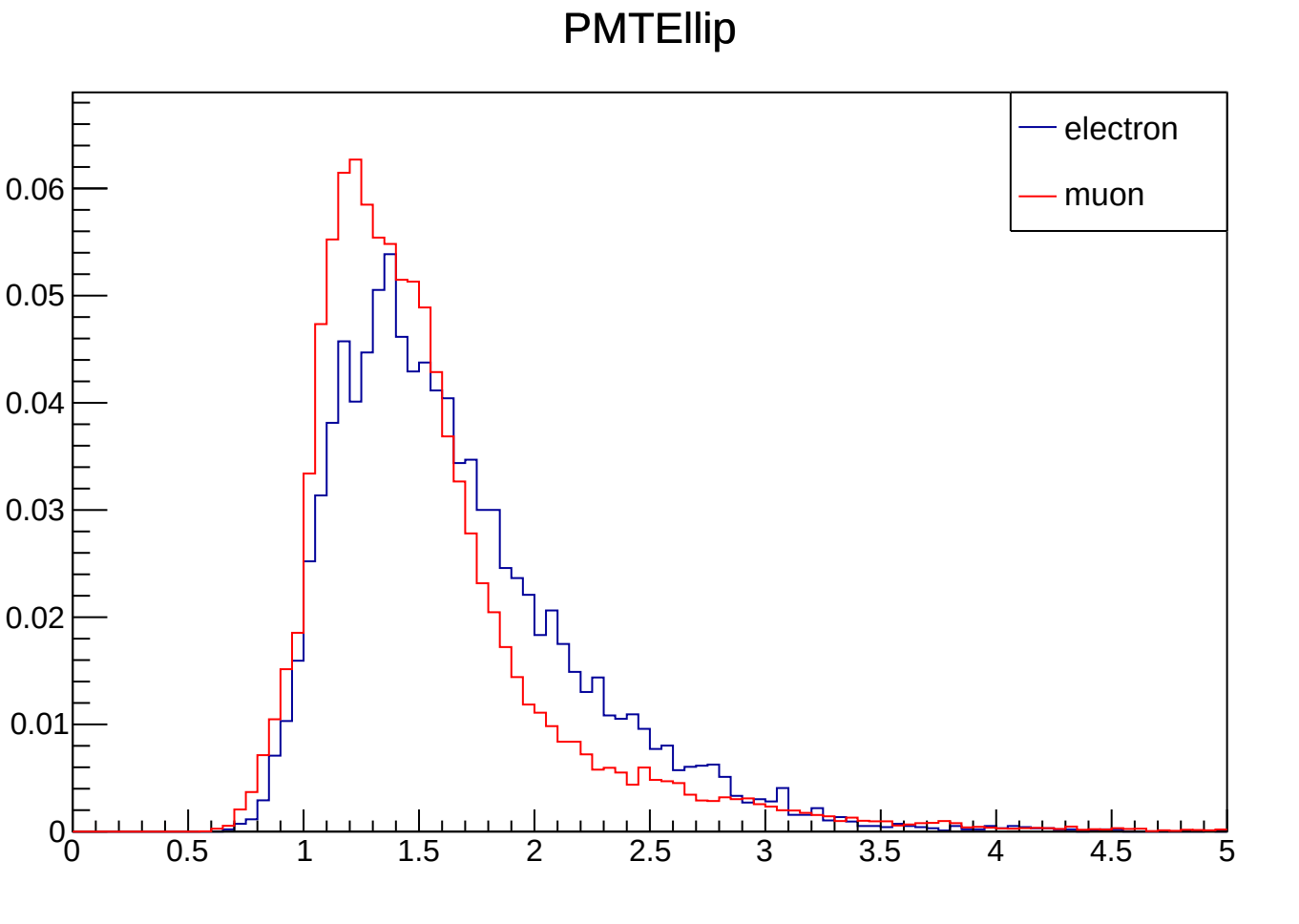
70
80
90
100


PMTEllip
electron
muon
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0.05
0.04
0.03
0.02
0.01
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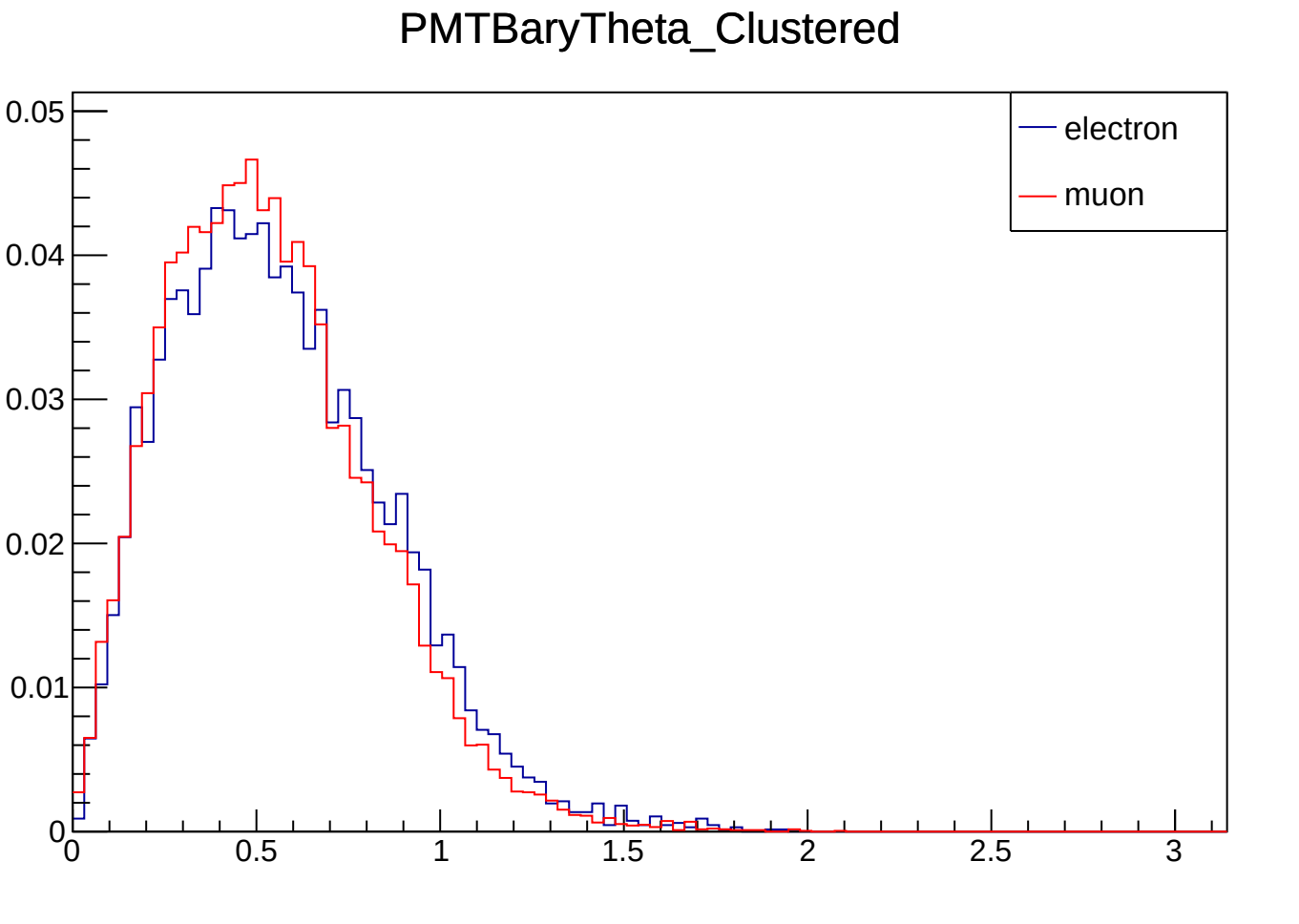
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


PMTBaryTheta_Clustered
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muon
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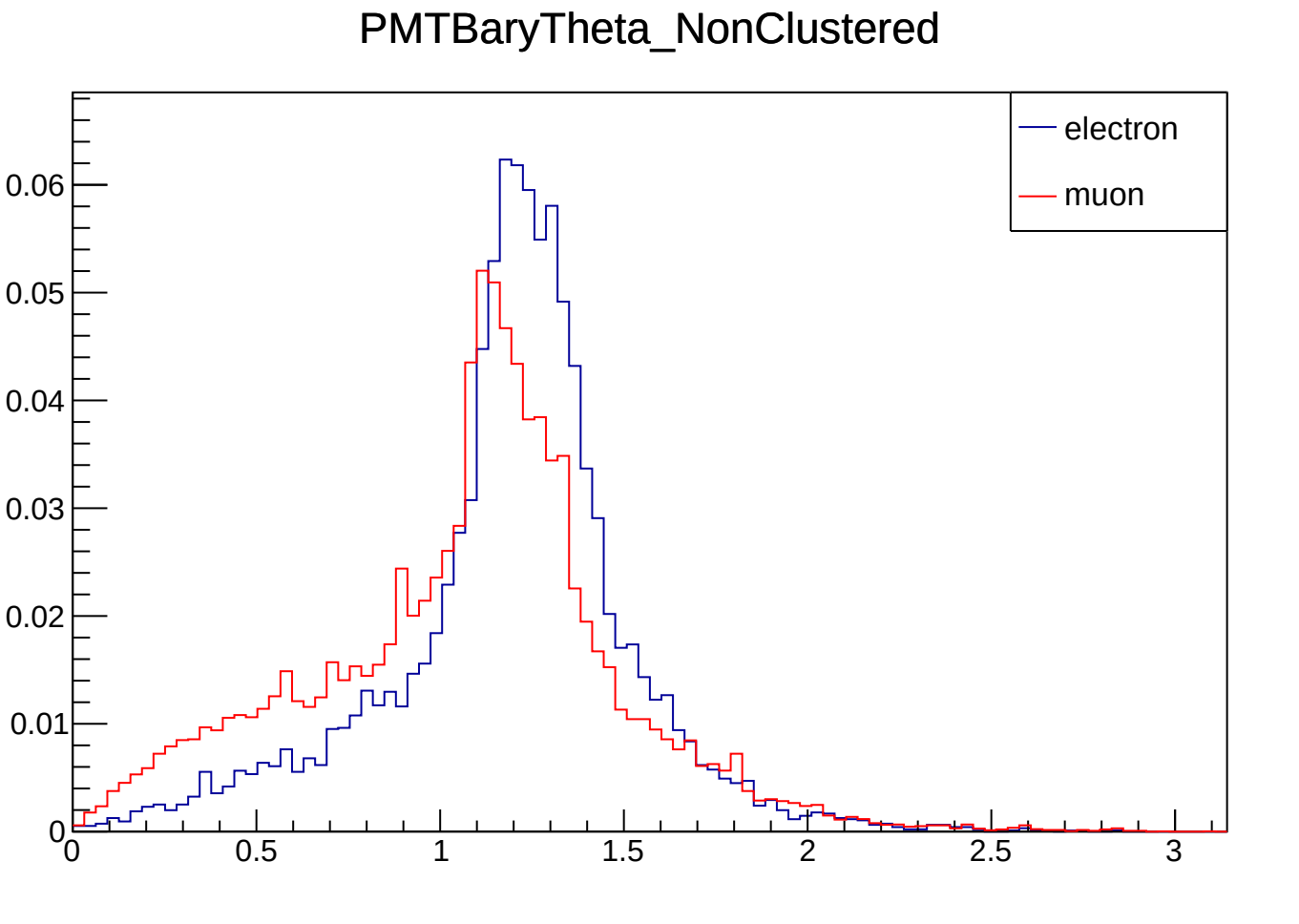
0.04
0.03
0.02
0.01
0
0
0.5
1
1.5
2
2.5
3


PMTBaryTheta_NonClustered
electron
muon
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0.05
0.04
0.03
0.02
0.01
0
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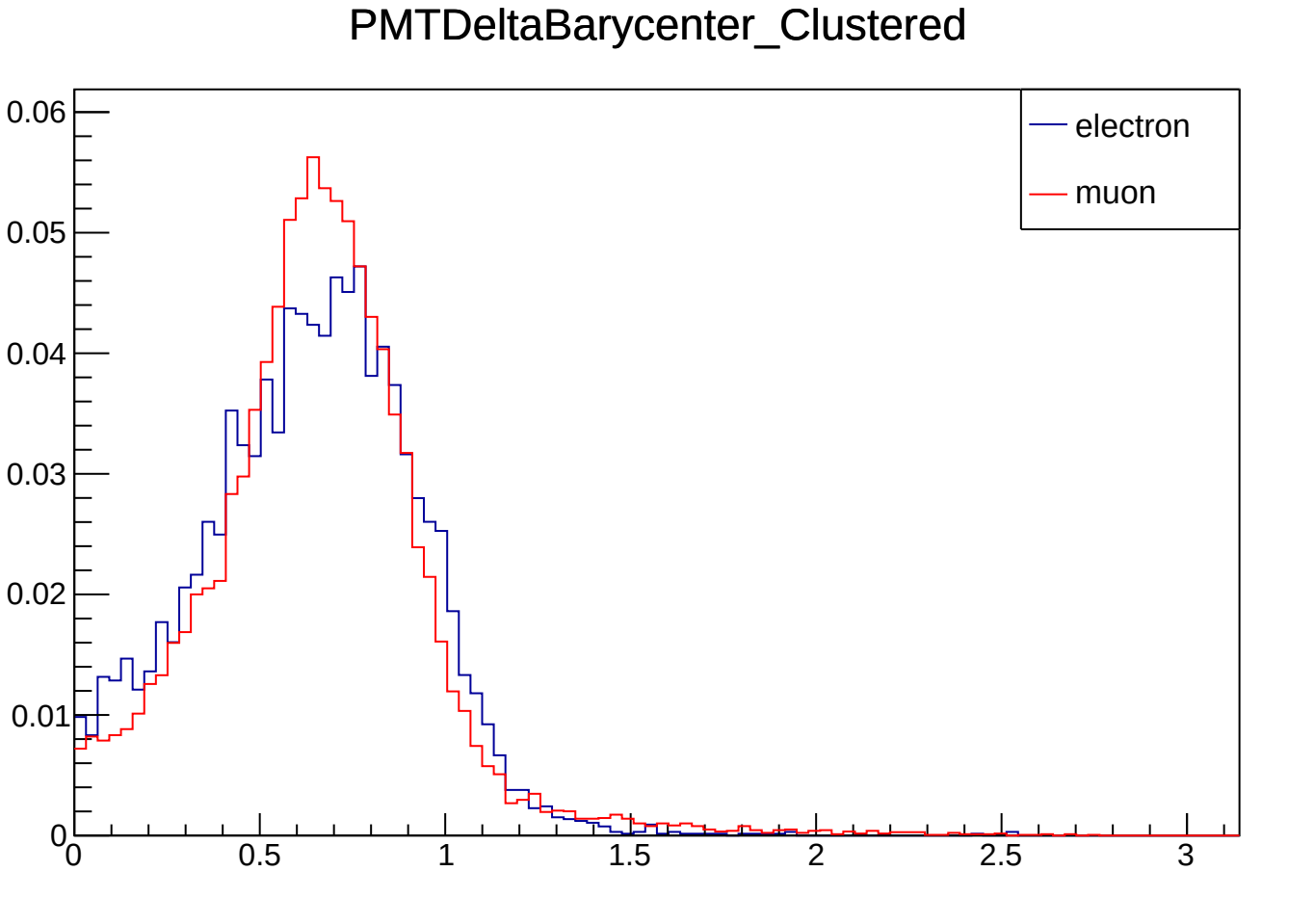
0.5
1
1.5
2
2.5
3


PMTDeltaBarycenter_Clustered
electron
muon
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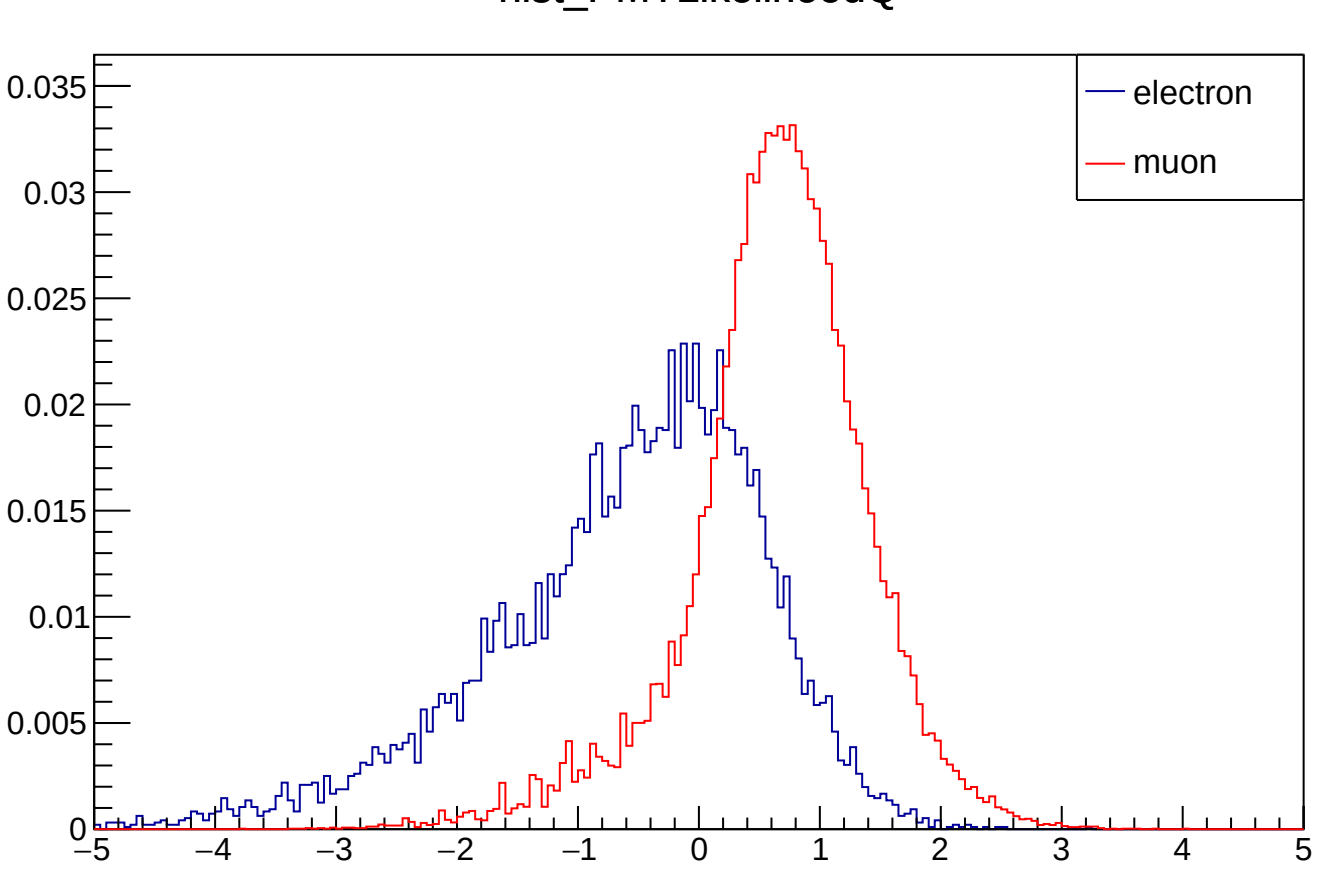
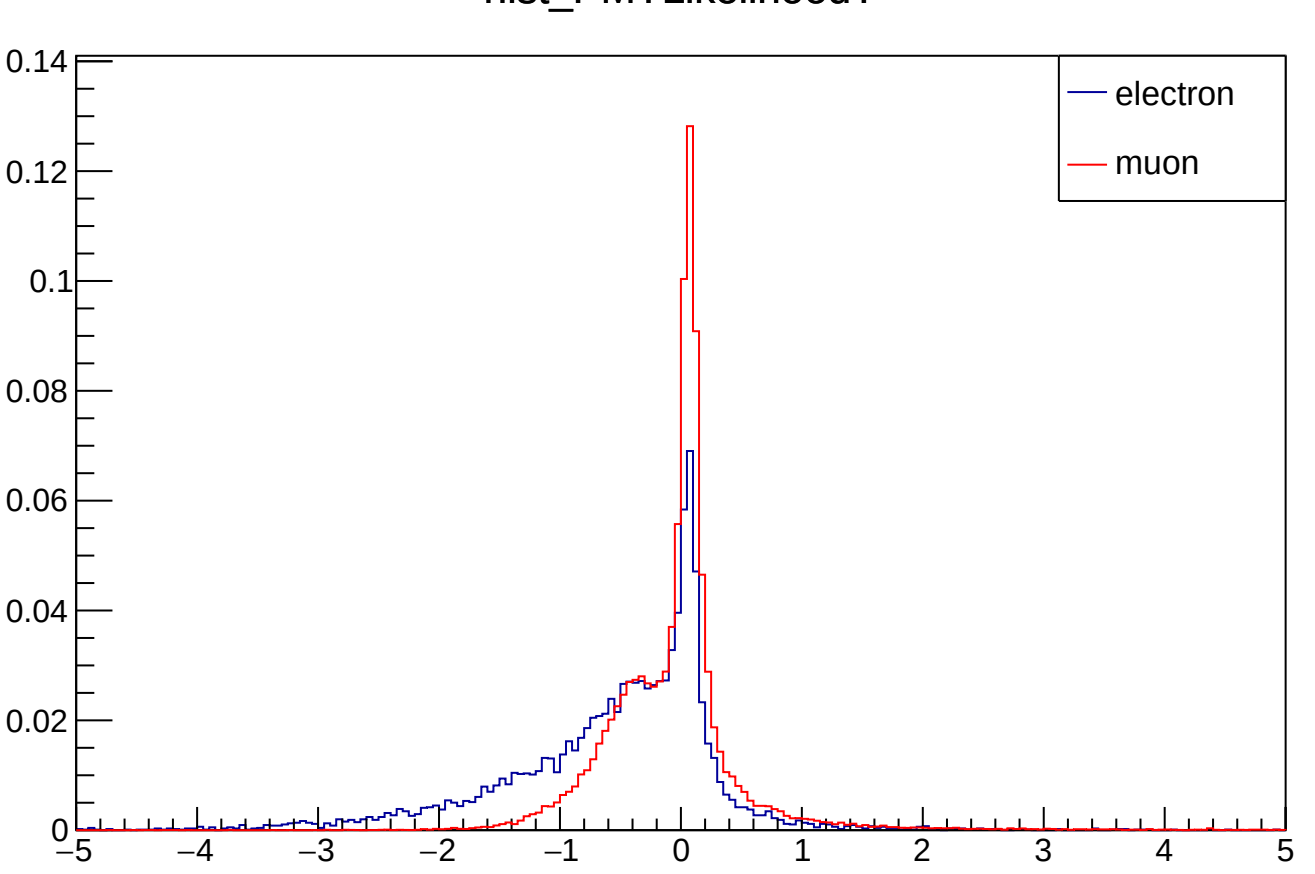
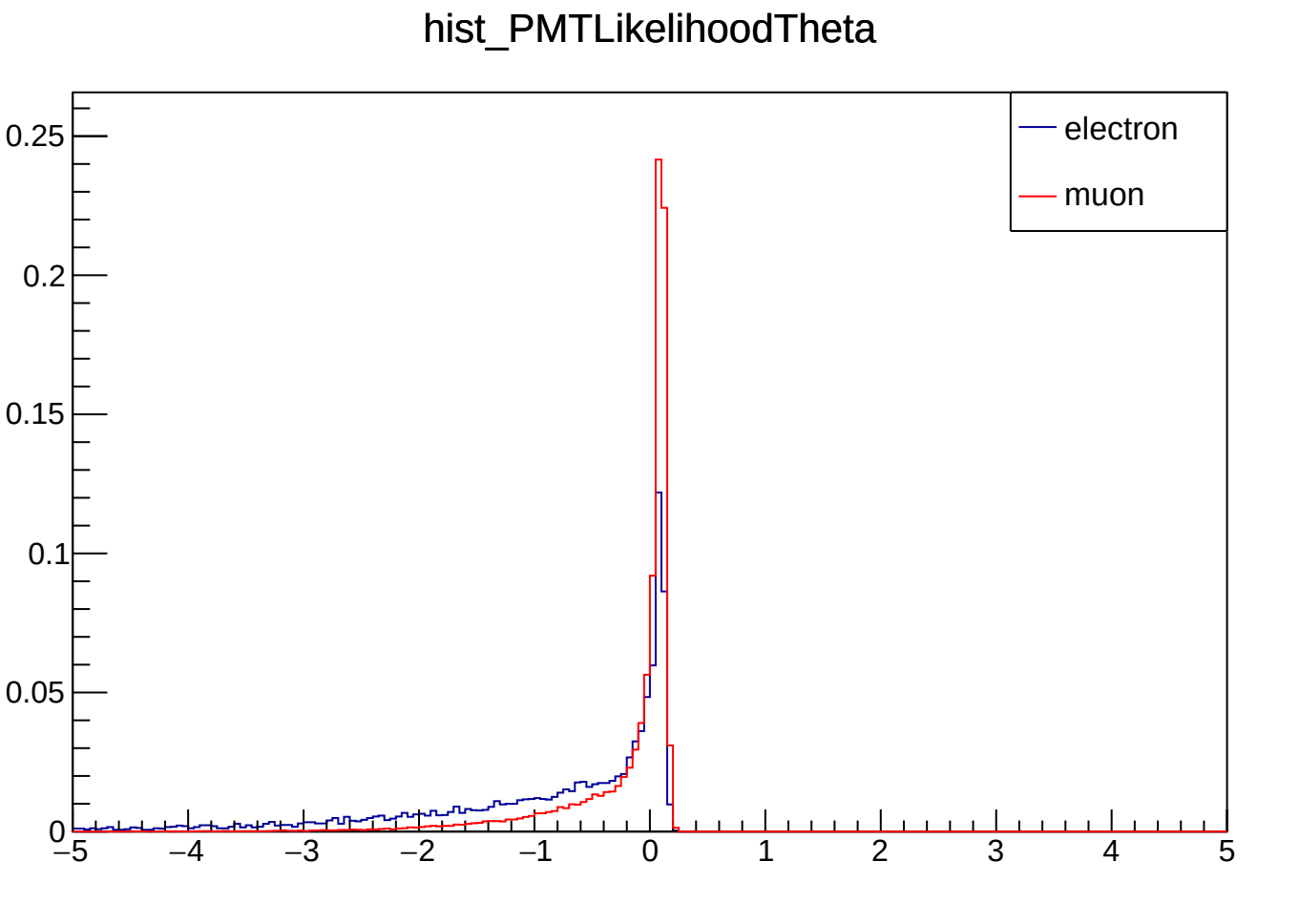
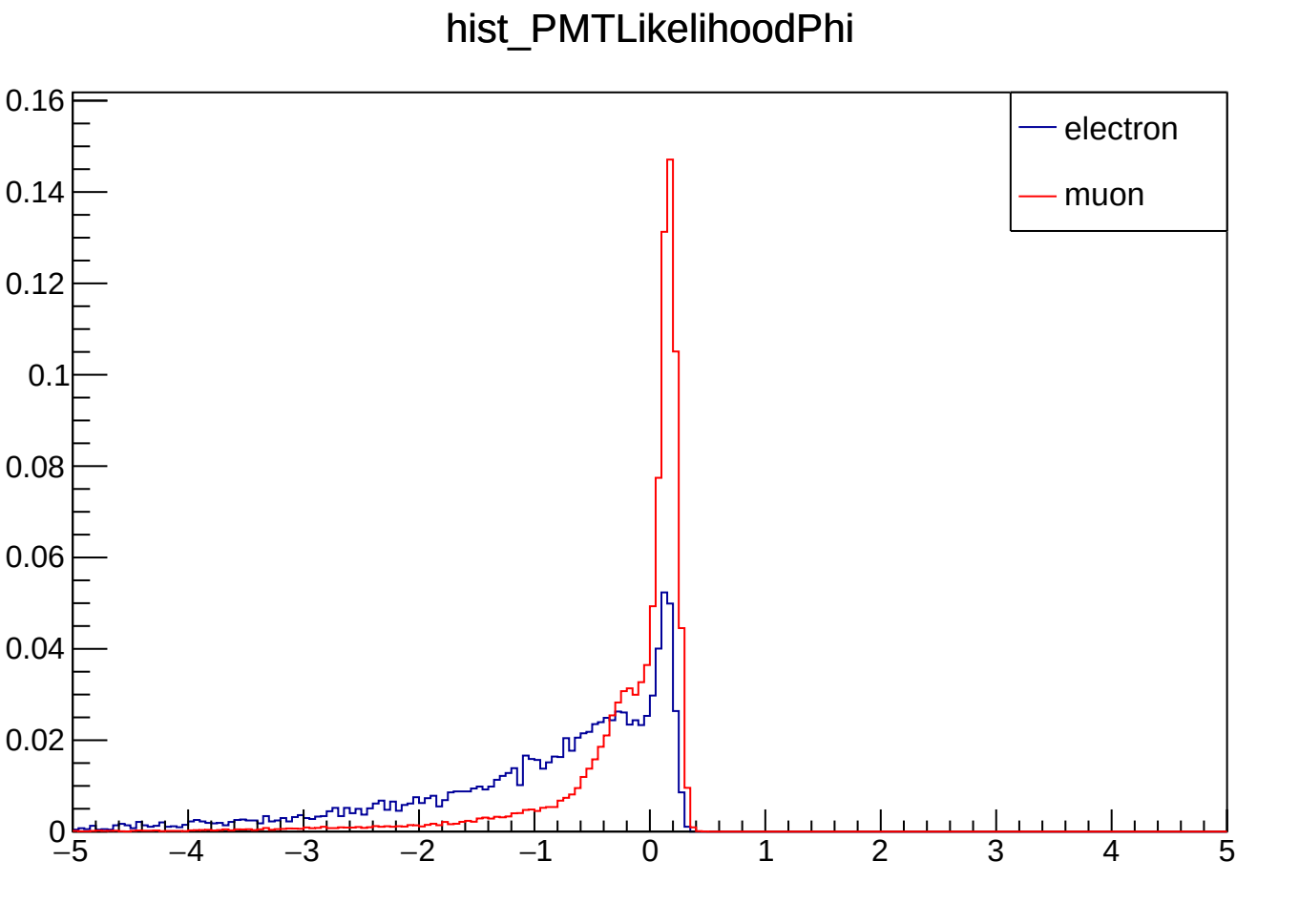
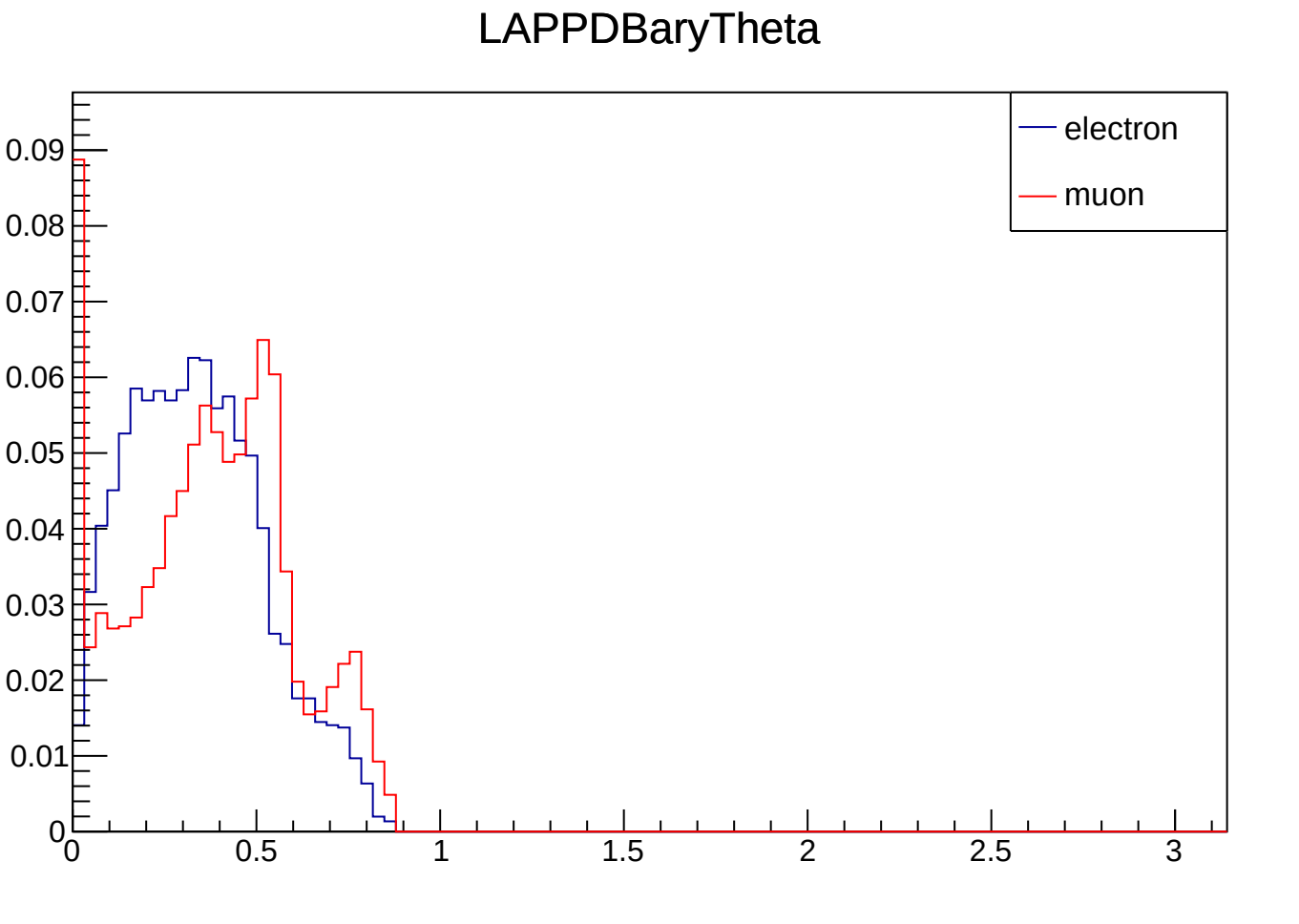
0.05
0.04
0.03
0.02
0.01
0
0
0.5
1
1.5
2
2.5
3

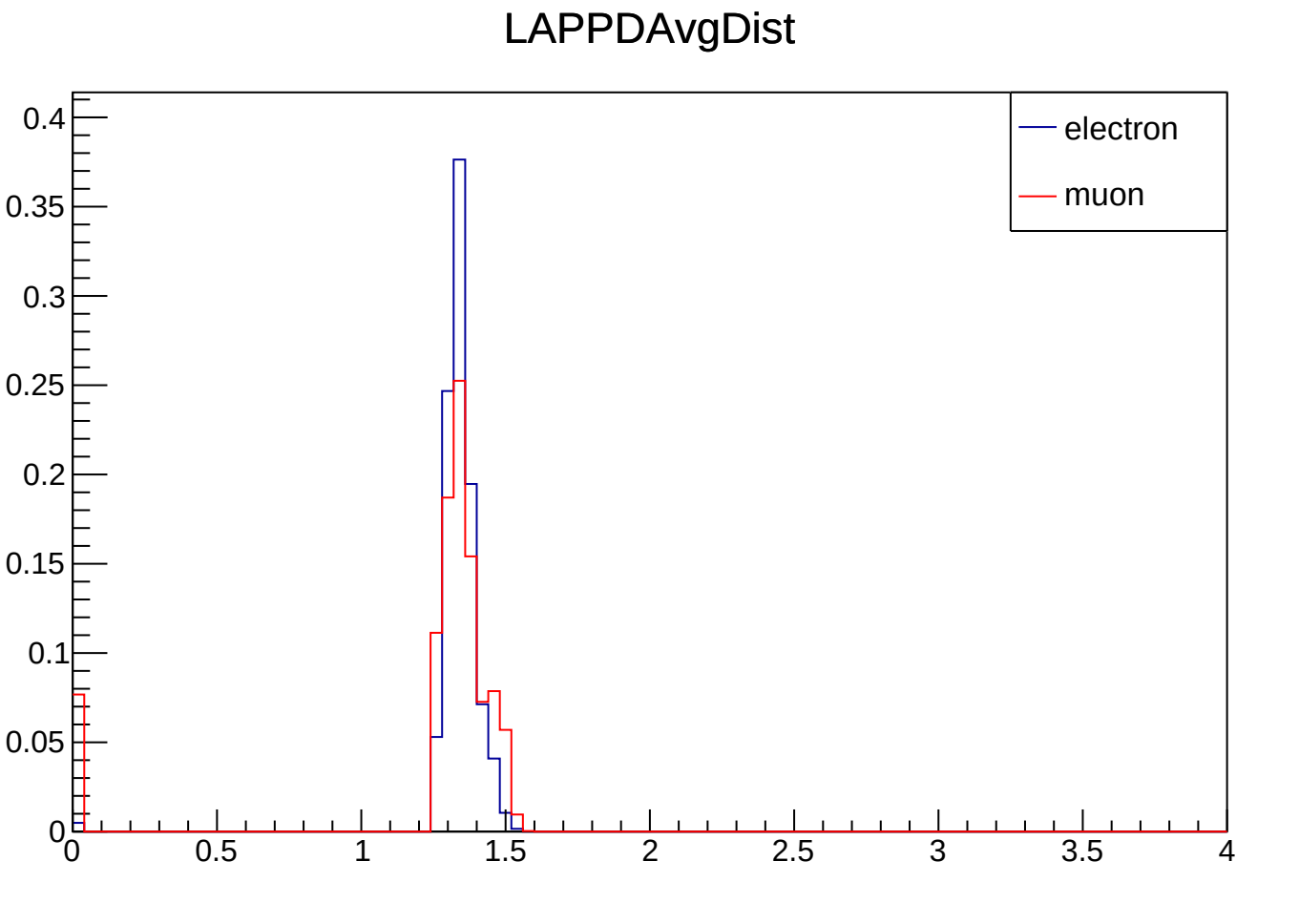

hist_PMTLikelihoodQ
electron
muon
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
−5
−4
−3
−2
−1
0
1
2
3
4
5

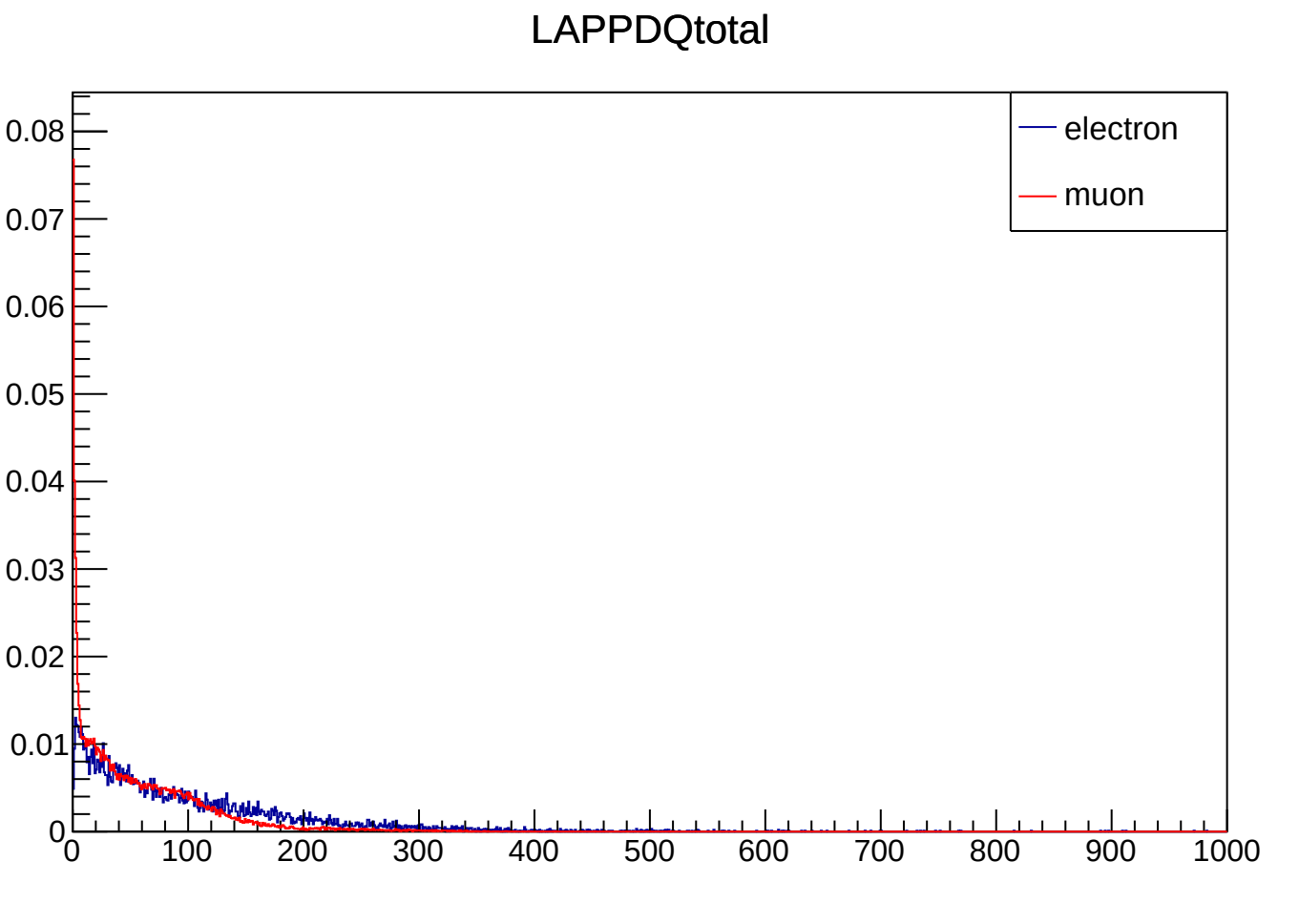

hist_PMTLikelihoodT
electron
muon
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
−5
−4
−3
−2
−1
0
1
2
3
4
5


hist_PMTLikelihoodTheta
electron
muon
0.25
0.2
0.15
0.1
0.05
0
−5
−4
−3
−2
−1
0
1
2
3
4
5


hist_PMTLikelihoodPhi
electron
muon
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
−5
−4
−3
−2
−1
0
1
2
3
4
5


LAPPDBaryTheta
electron
muon
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
0.5
1
1.5
2
2.5
3


LAPPDAvgDist
electron
muon
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
0.5
1
1.5
2
2.5
3
3.5
4


LAPPDQtotal
electron
muon
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
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200
300
400
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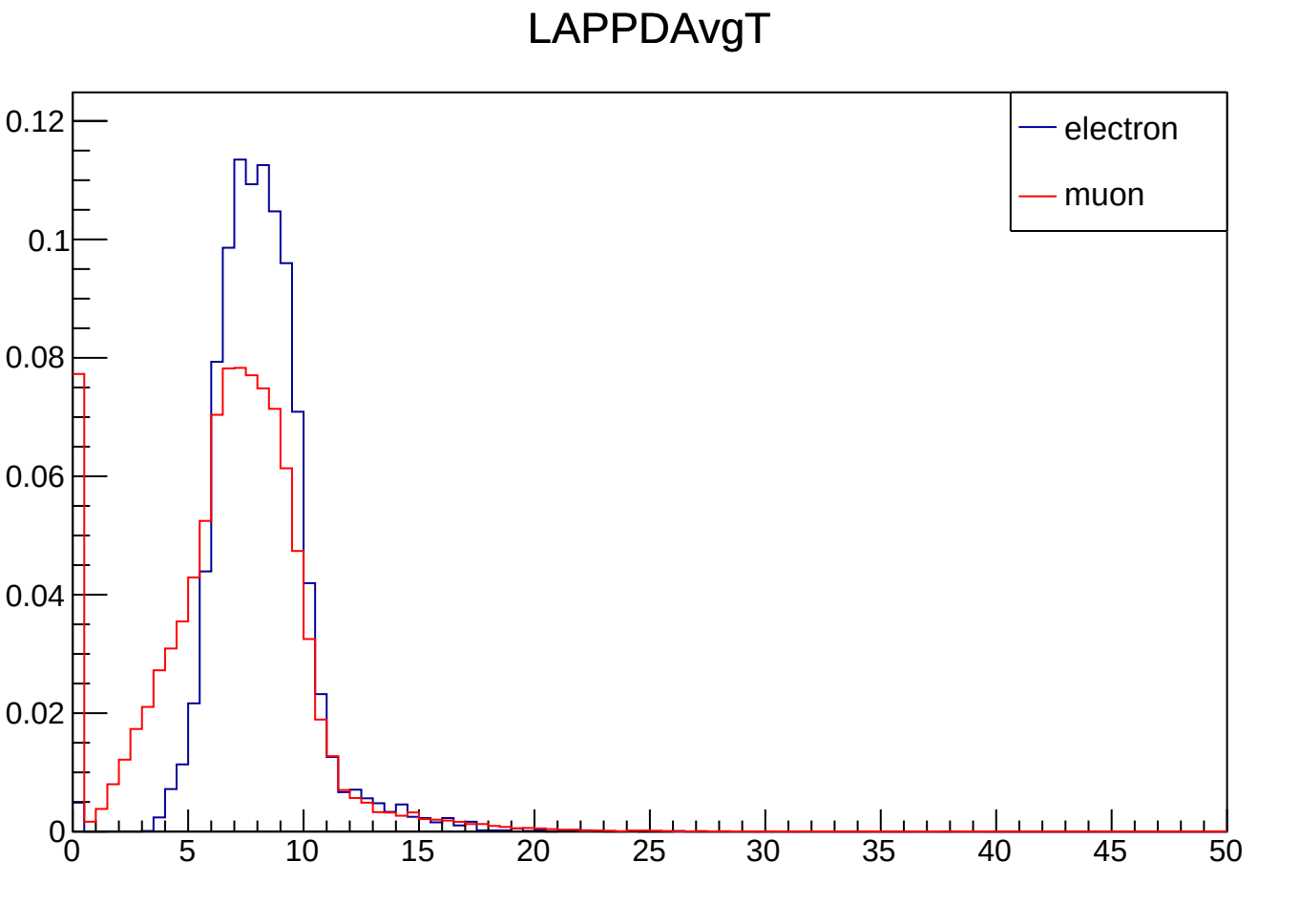
700
800
900
1000


LAPPDAvgT
electron
muon
0.12
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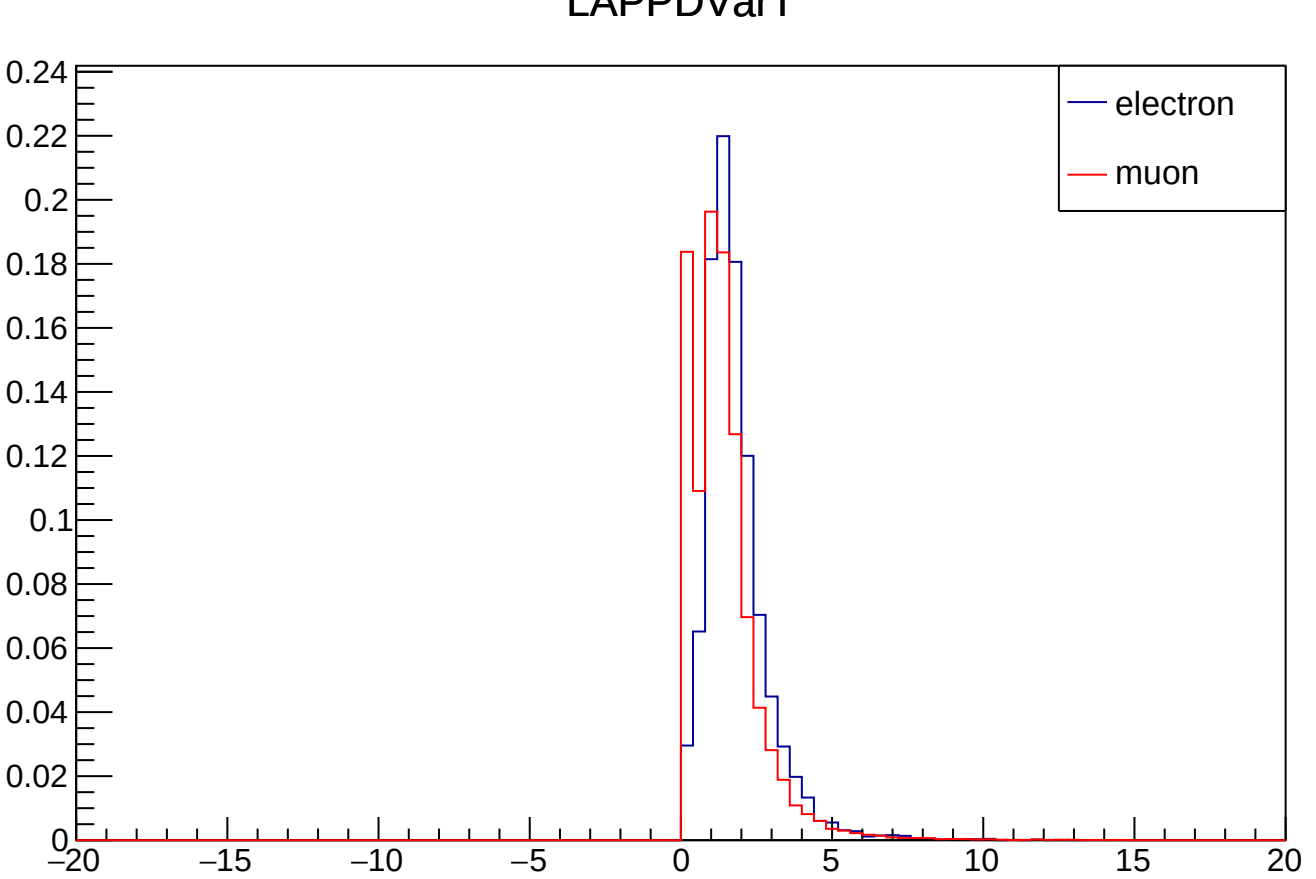
LAPPDVarT
electron
muon
0.24
0.22
0.2
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0.16
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0.12
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0.04
0.02
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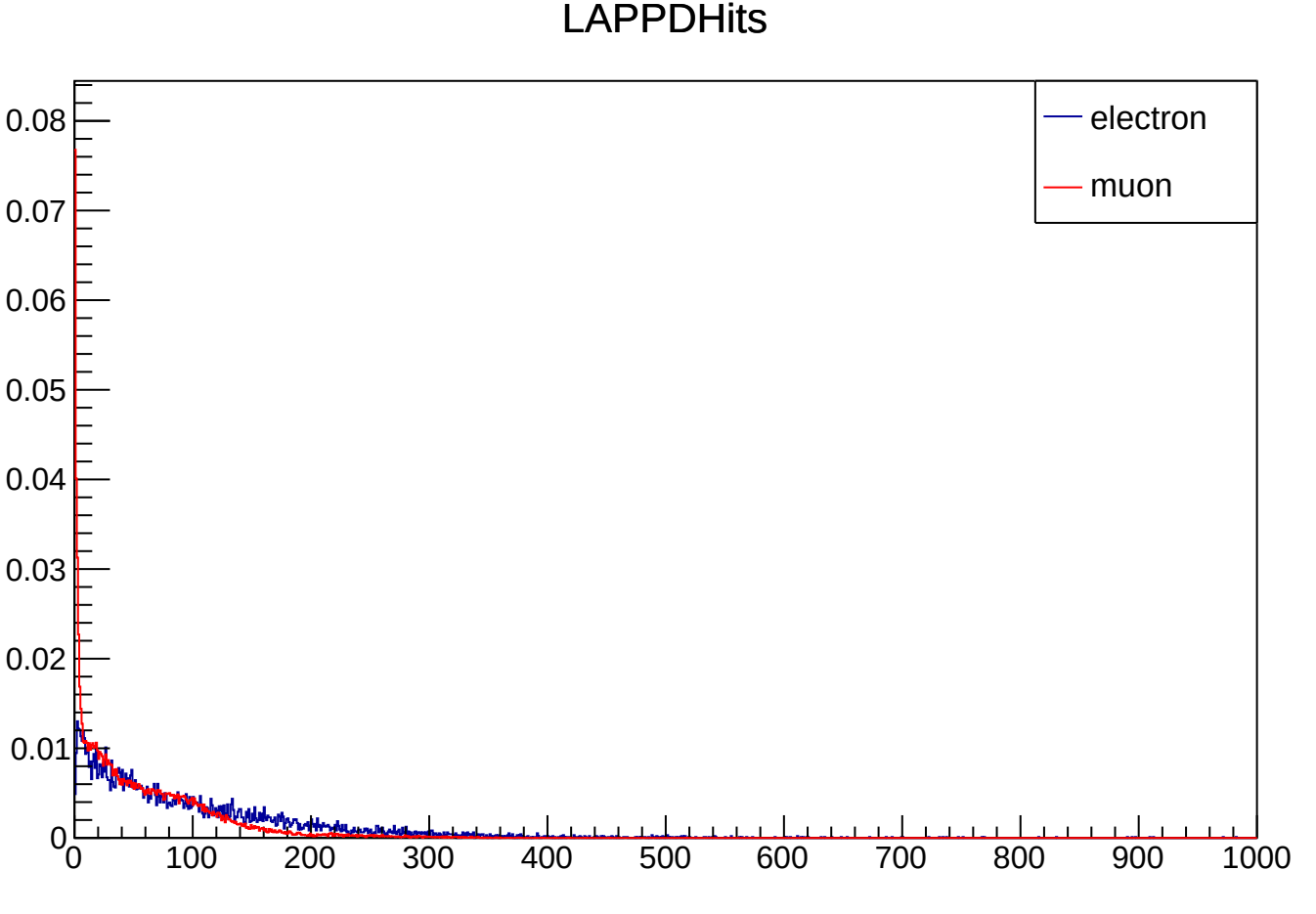
LAPPDHits
electron
muon
0.08
0.07
0.06
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0.04
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0.02
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900
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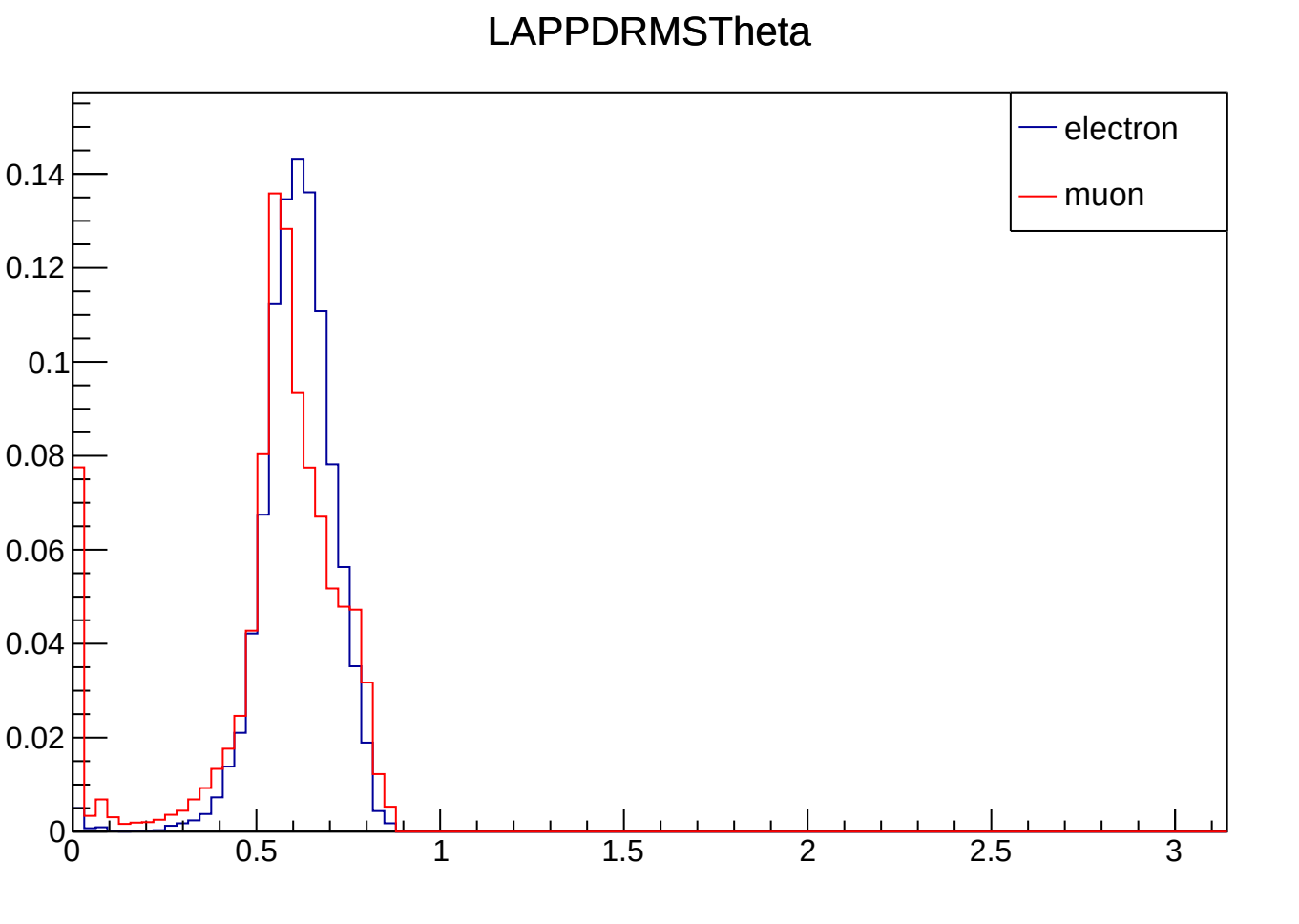
LAPPDRMSTheta
electron
muon
0.14
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0.08
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0.5
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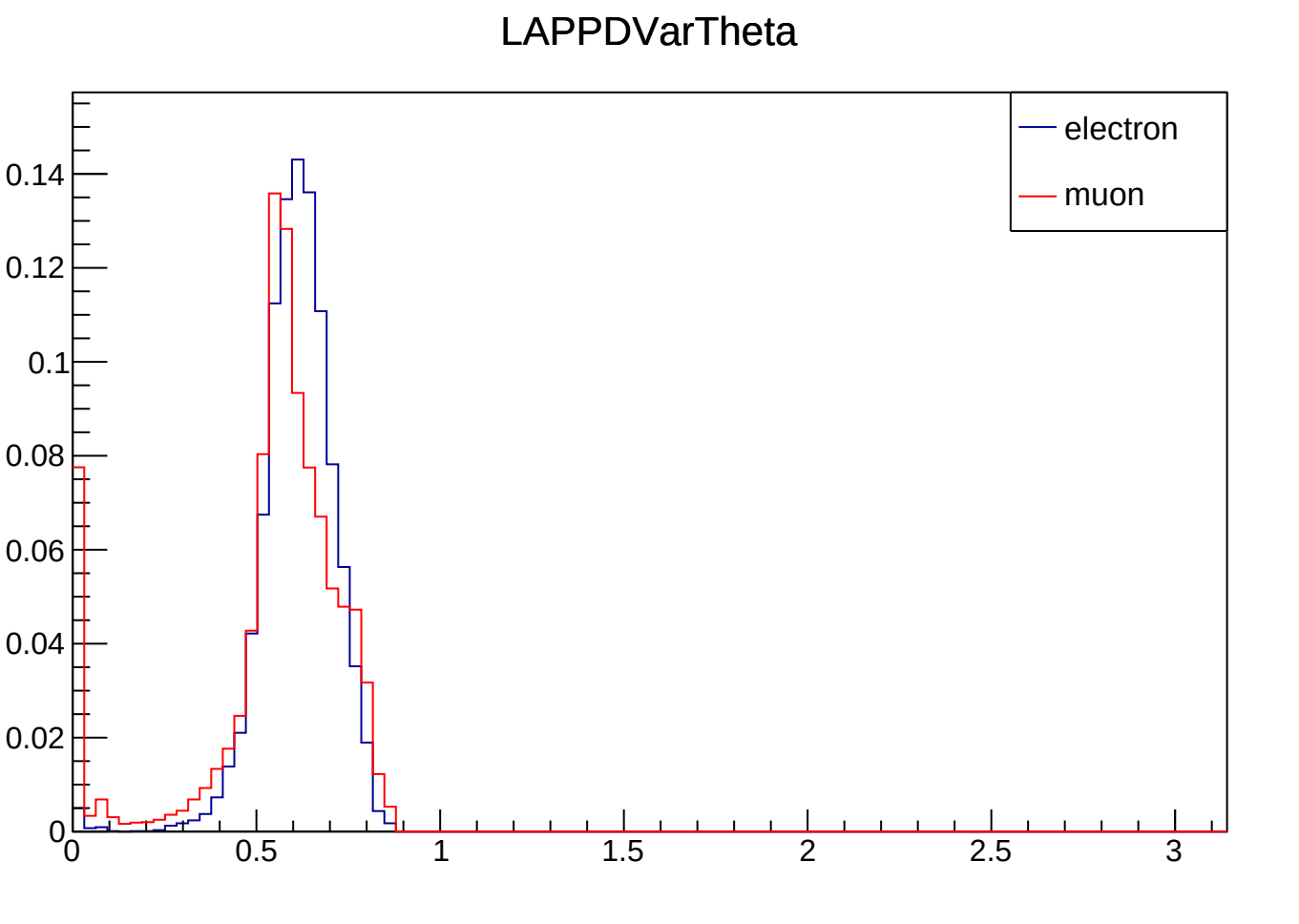
2
2.5
3


LAPPDVarTheta
electron
muon
0.14
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0.08
0.06
0.04
0.02
0
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0.5
1
1.5
2
2.5
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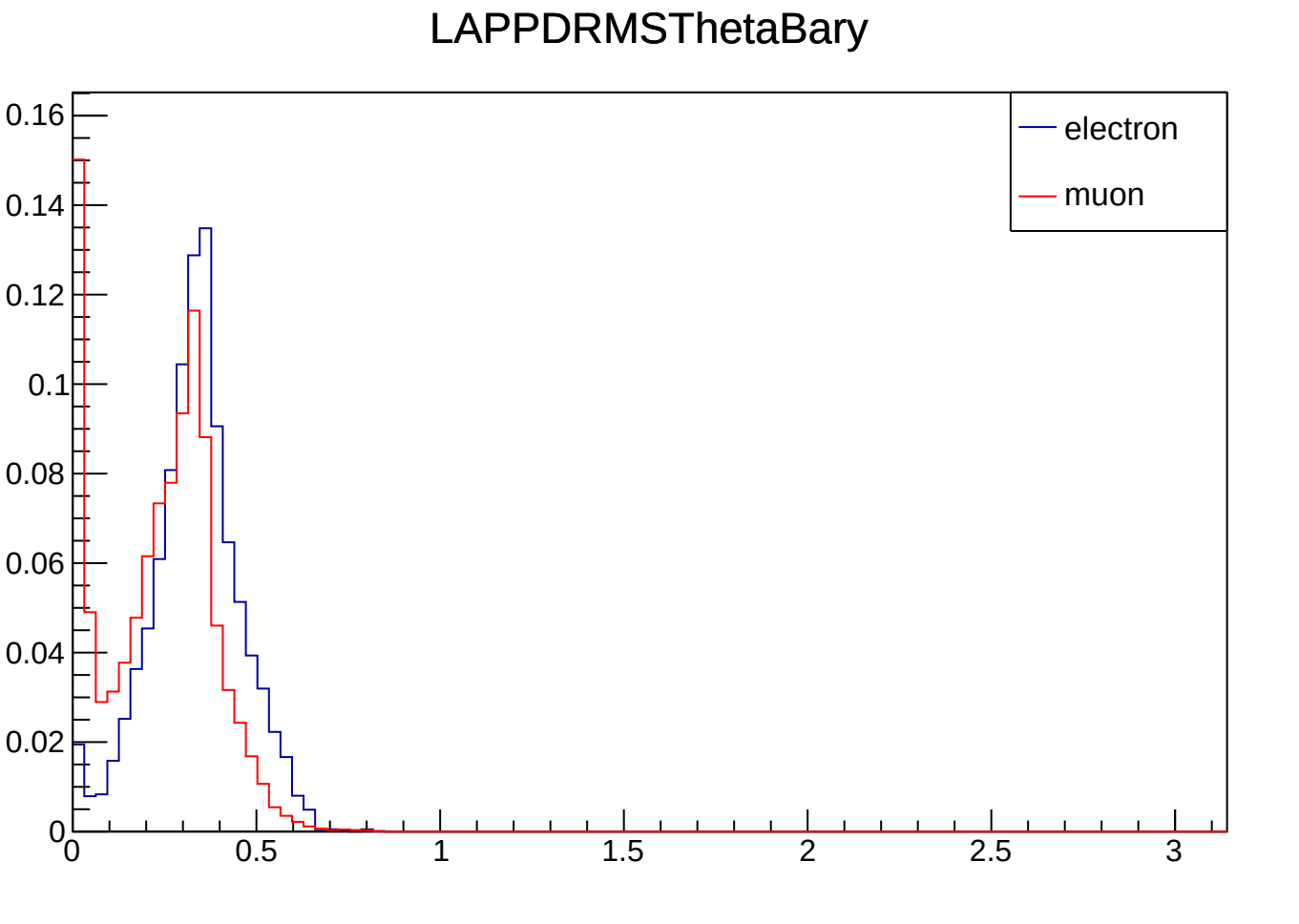
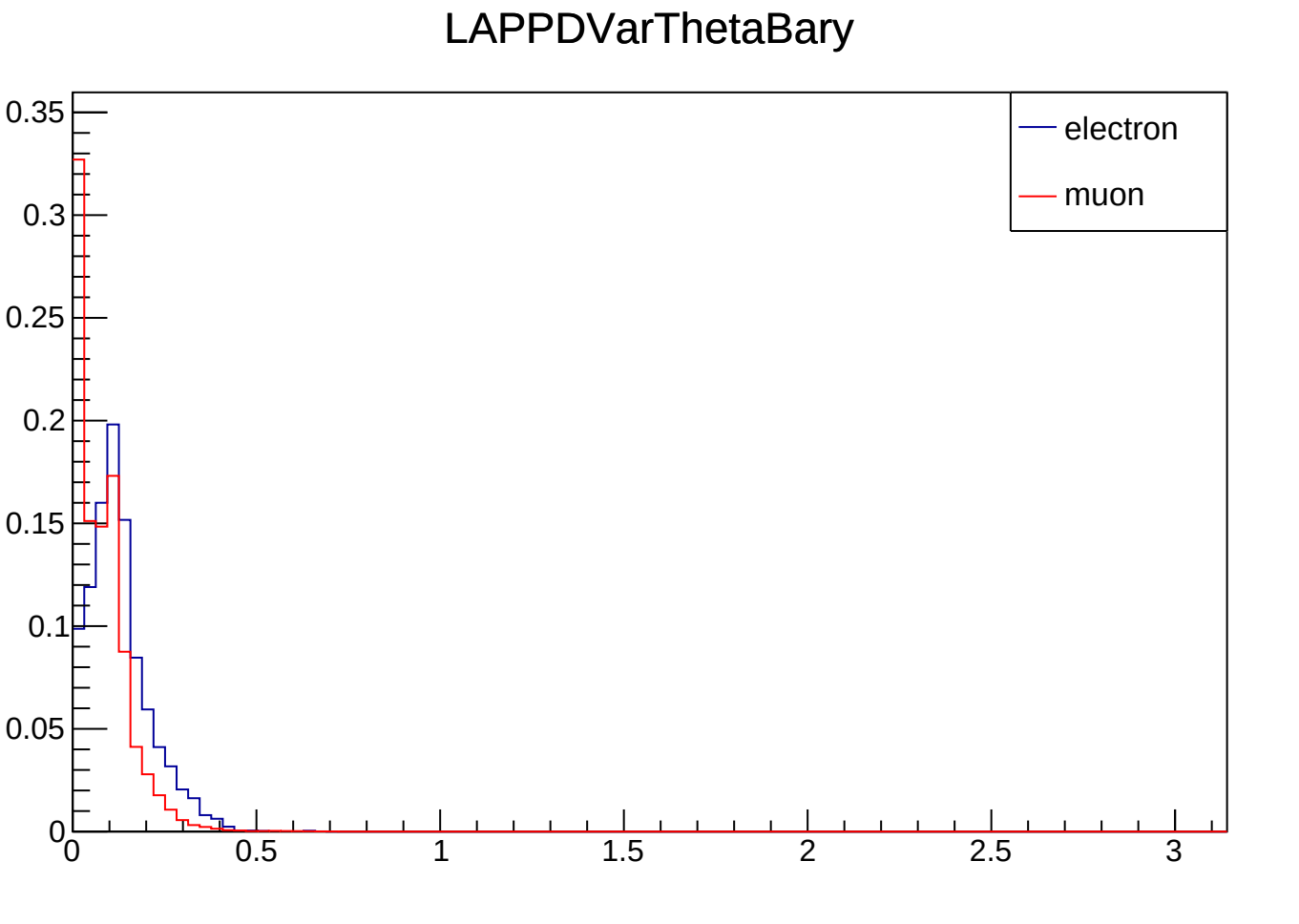

LAPPDRMSThetaBary
electron
muon
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
0.5
1
1.5
2
2.5
3


LAPPDVarThetaBary
electron
muon
0.35
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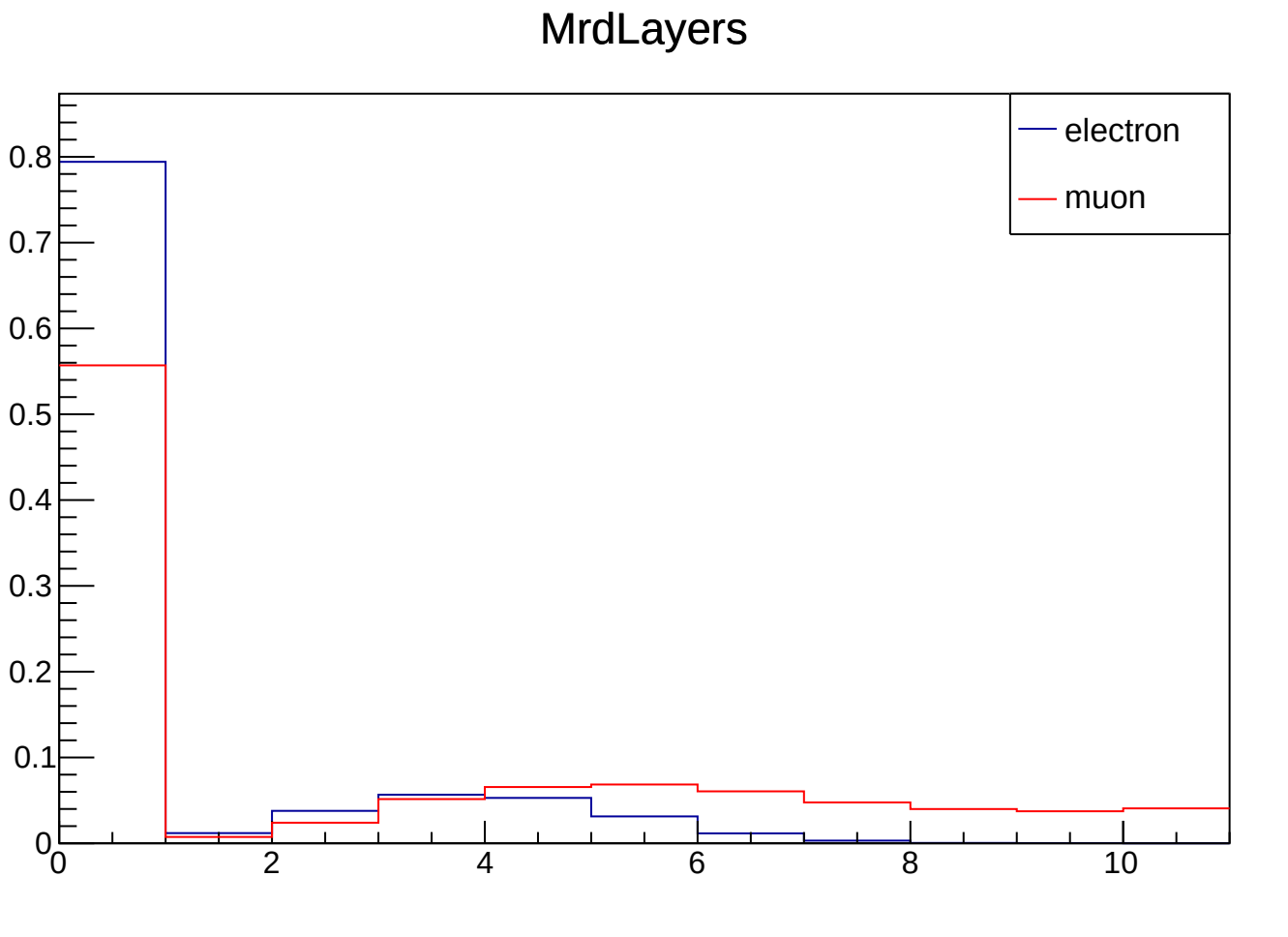
0.25
0.2
0.15
0.1
0.05
0
0
0.5
1
1.5
2
2.5
3


MrdLayers
electron
muon
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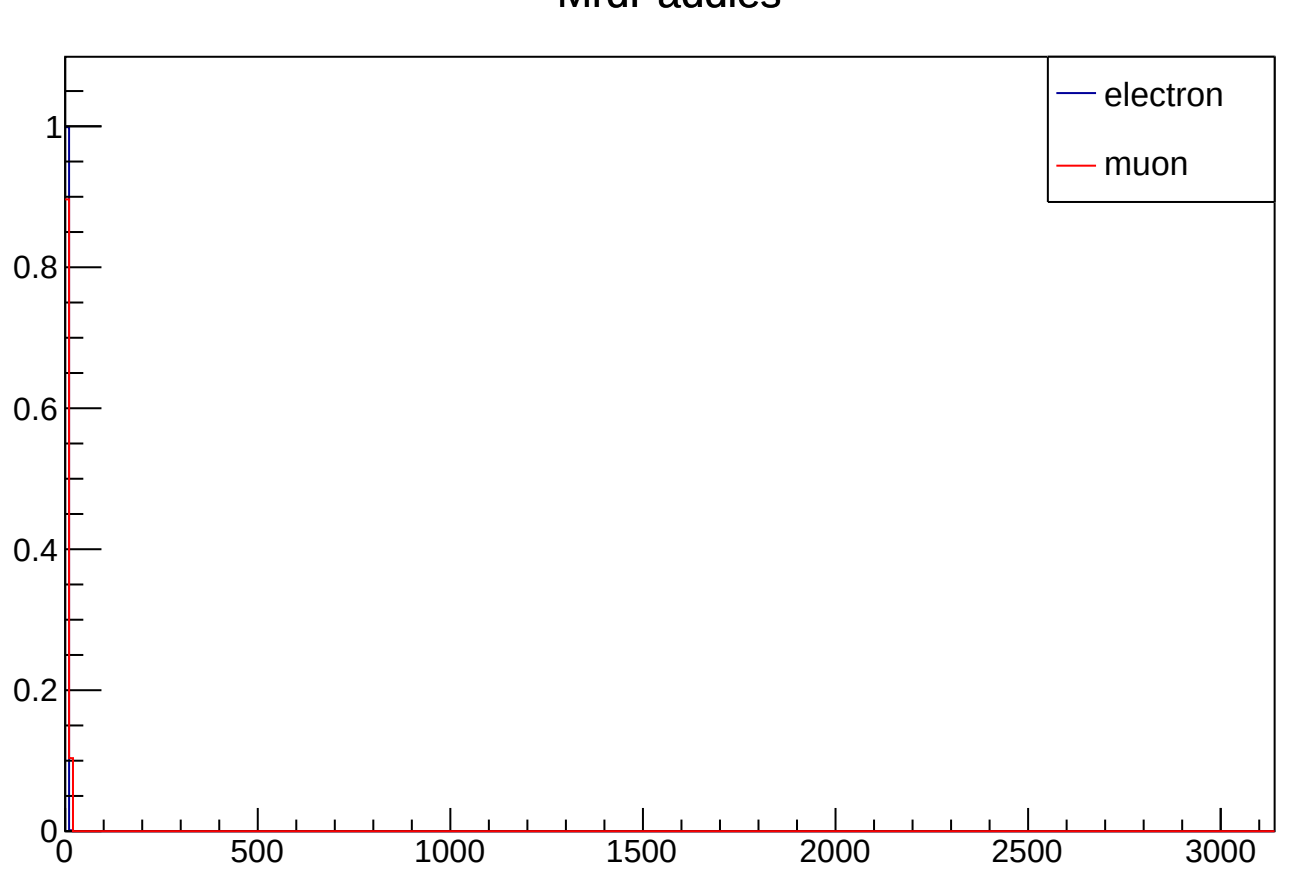
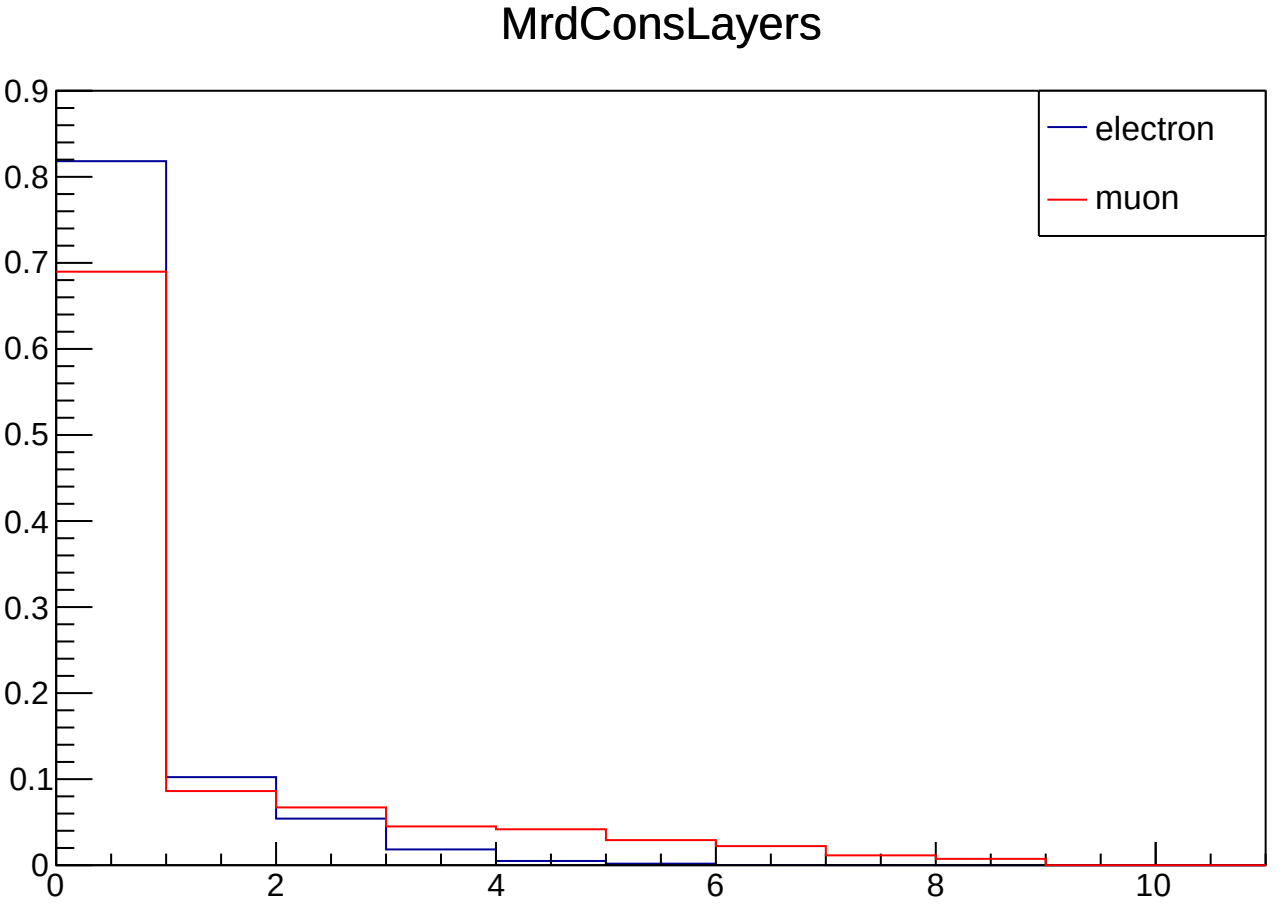
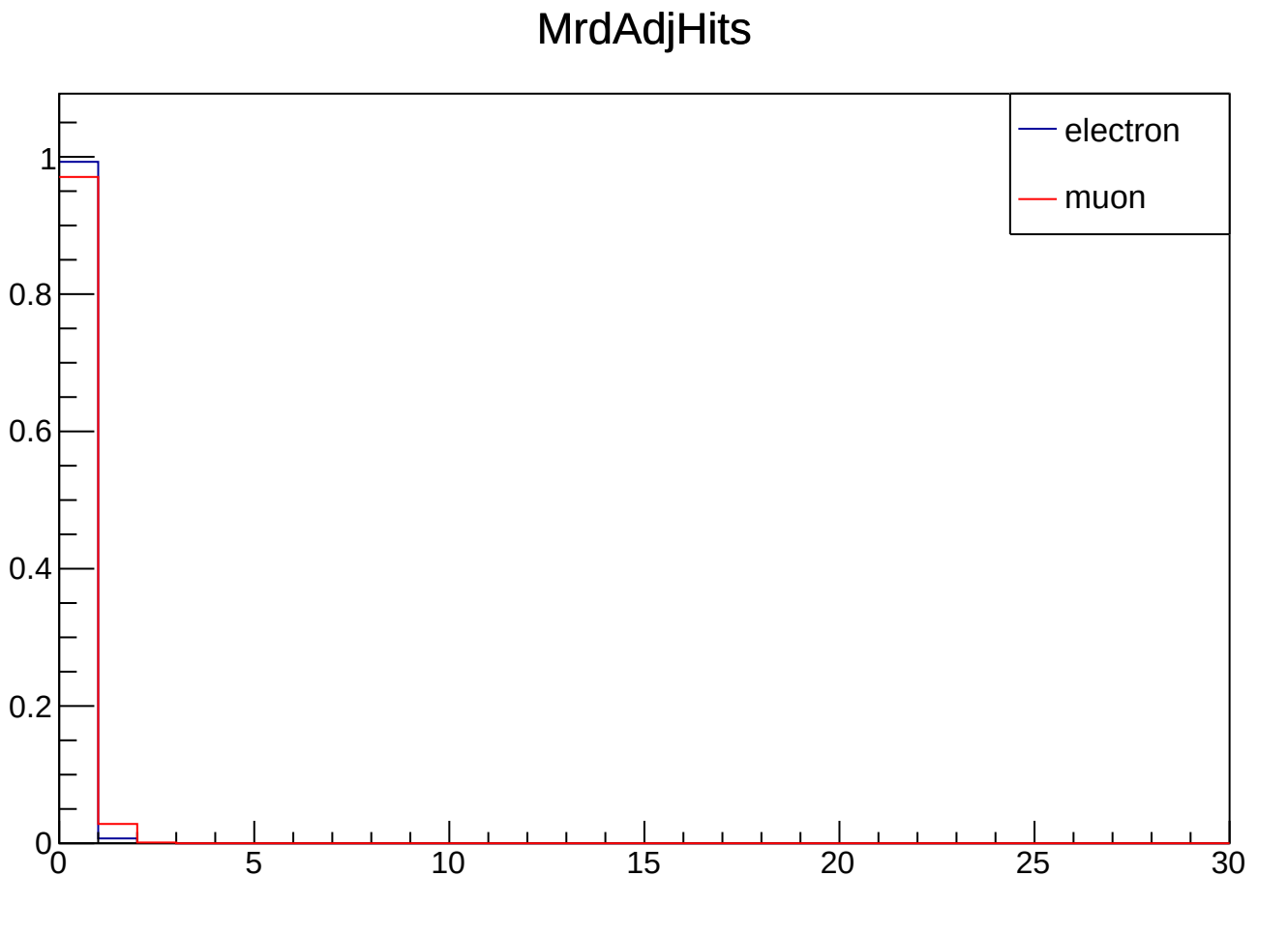
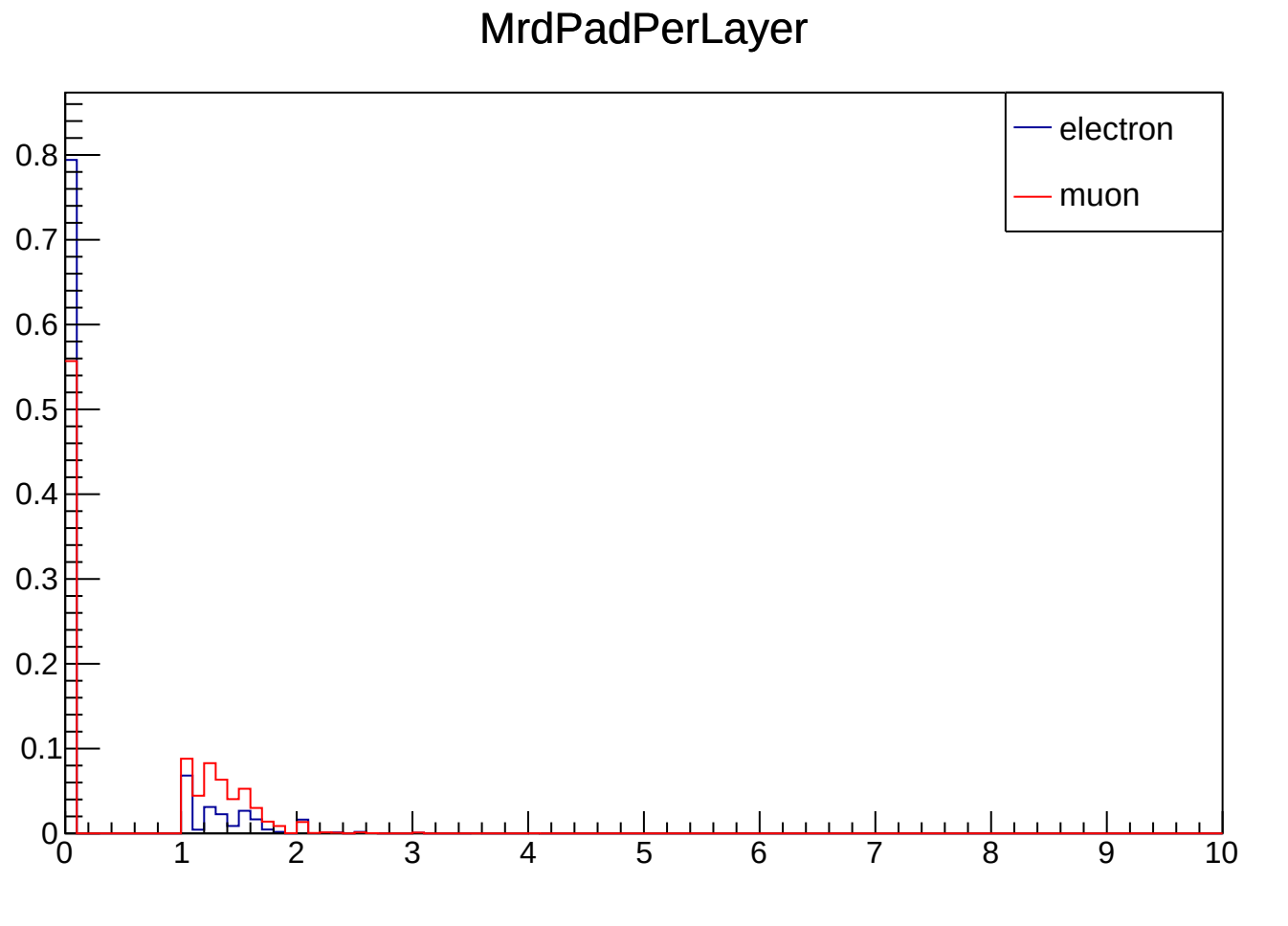
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
2
4
6
8
10


MrdPaddles
electron
muon
1
0.8
0.6
0.4
0.2
0
0
500
1000
1500
2000
2500
3000


MrdConsLayers
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
2
4
6
8
10
electron
muon


MrdAdjHits
electron
muon
1
0.8
0.6
0.4
0.2
0
0
5
10
15
20
25
30


MrdPadPerLayer
electron
muon
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
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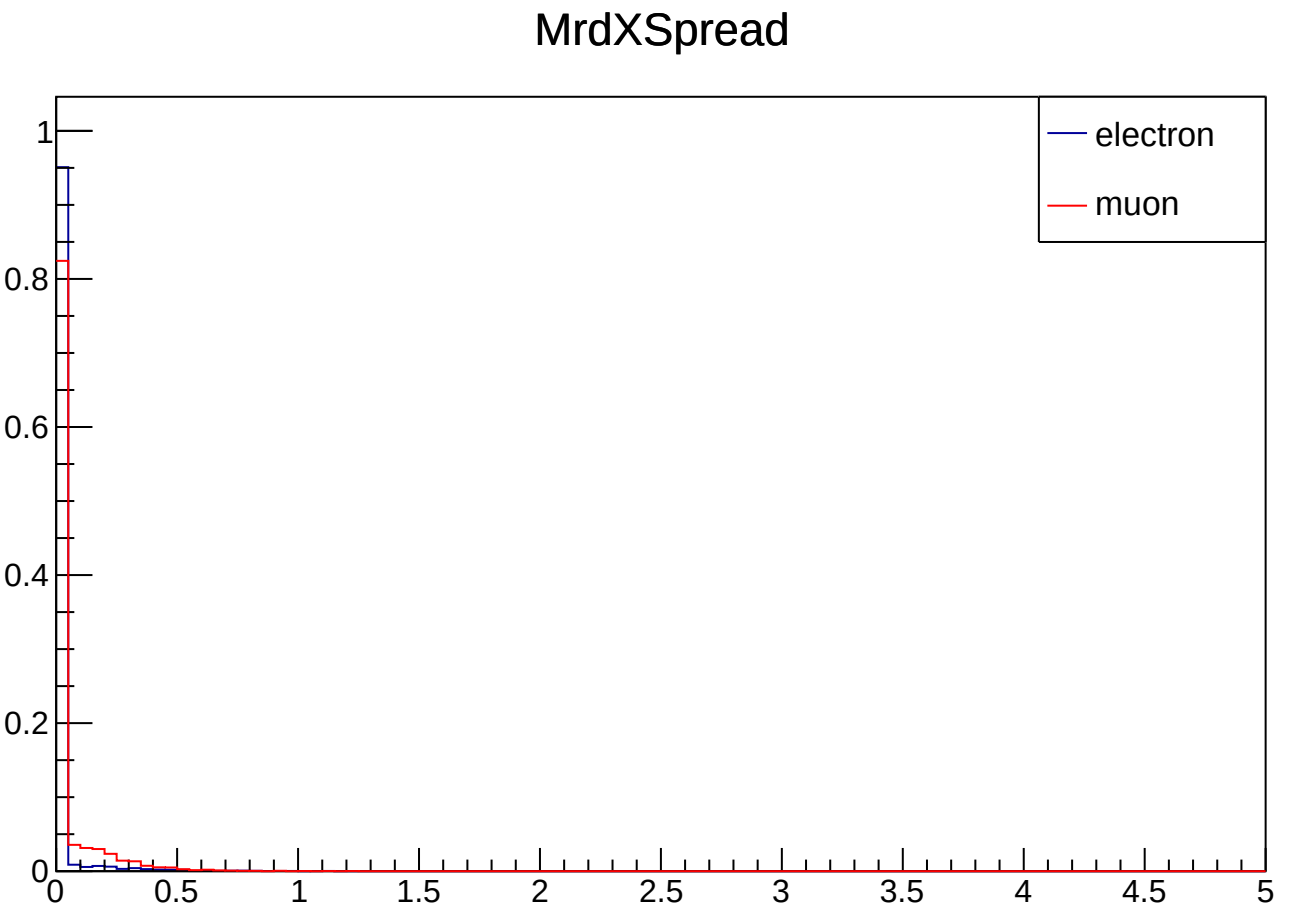
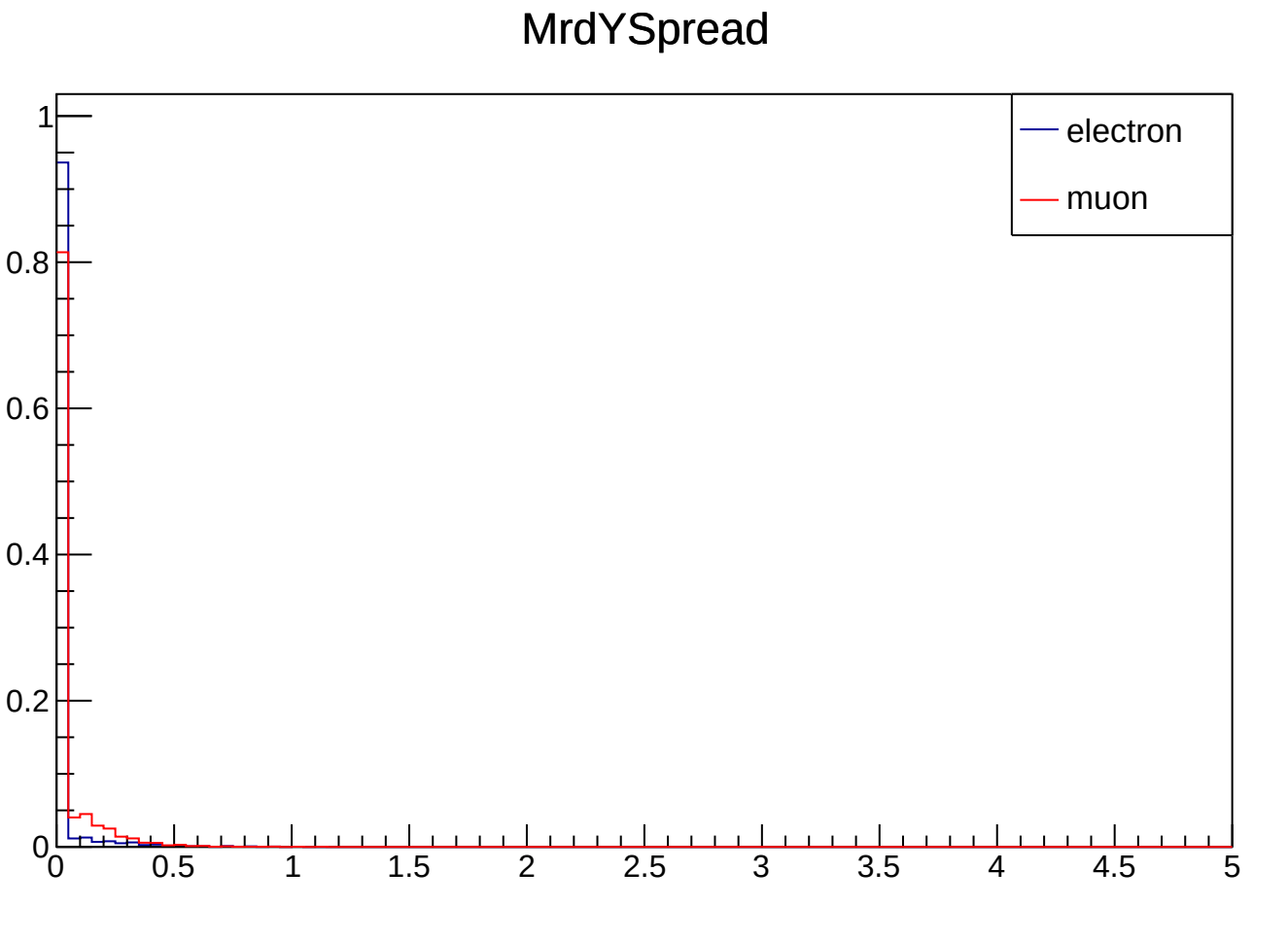
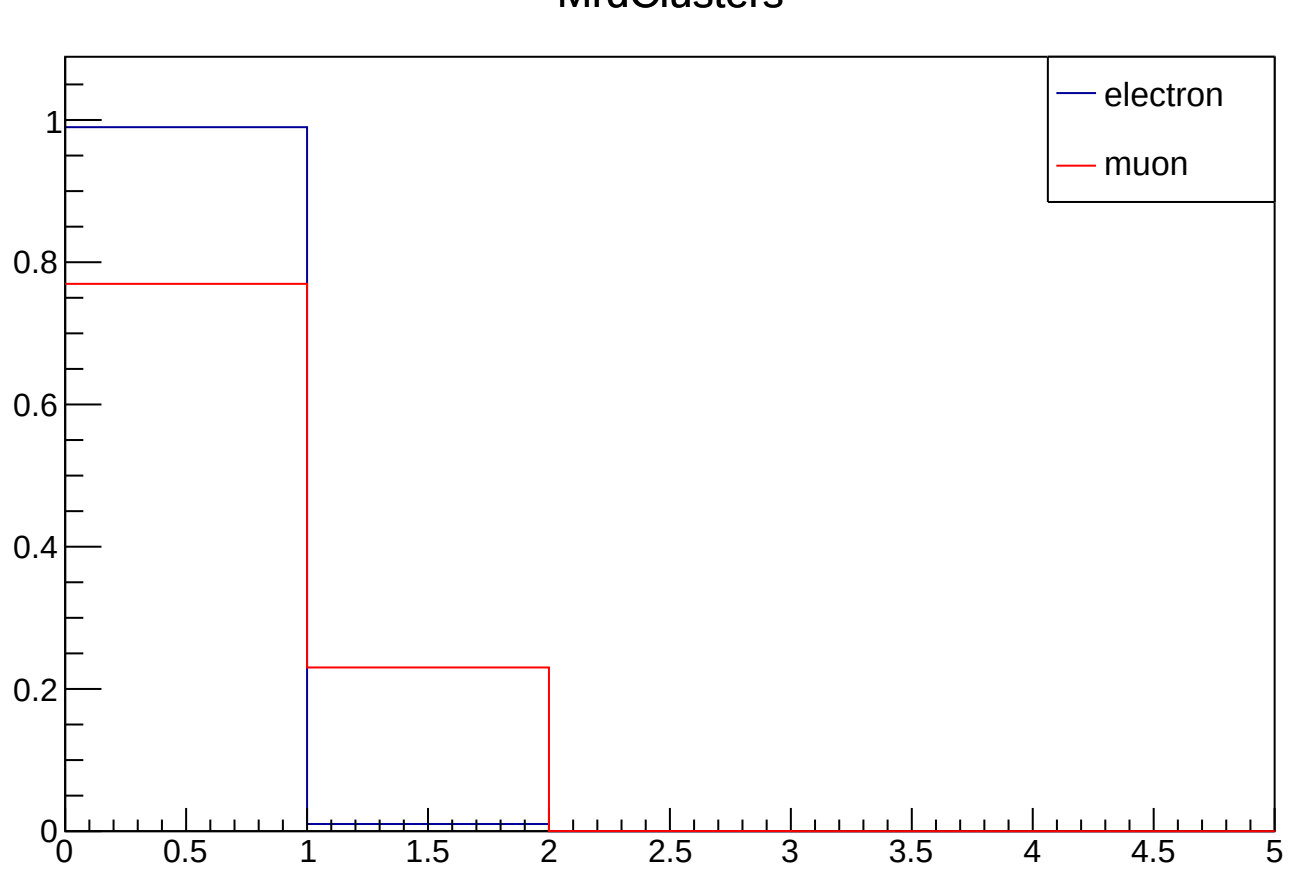
7
8
9
10


MrdXSpread
electron
muon
1
0.8
0.6
0.4
0.2
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


MrdYSpread
electron
muon
1
0.8
0.6
0.4
0.2
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


MrdClusters
electron
muon
1
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0.4
0.2
0
0
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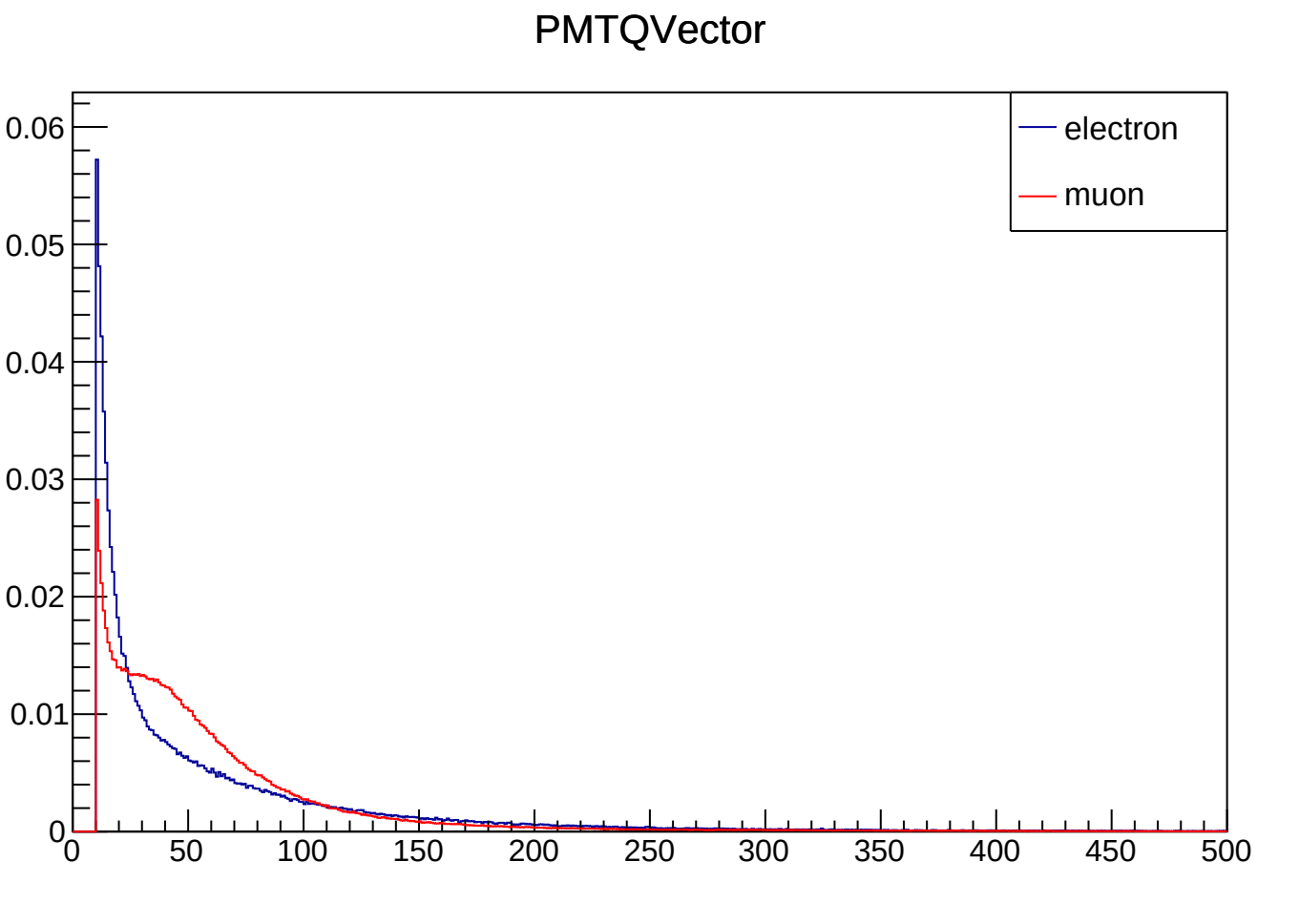
1
1.5
2
2.5
3
3.5
4
4.5
5


PMTQVector
electron
muon
0.06
0.05
0.04
0.03
0.02
0.01
0
0
50
100
150
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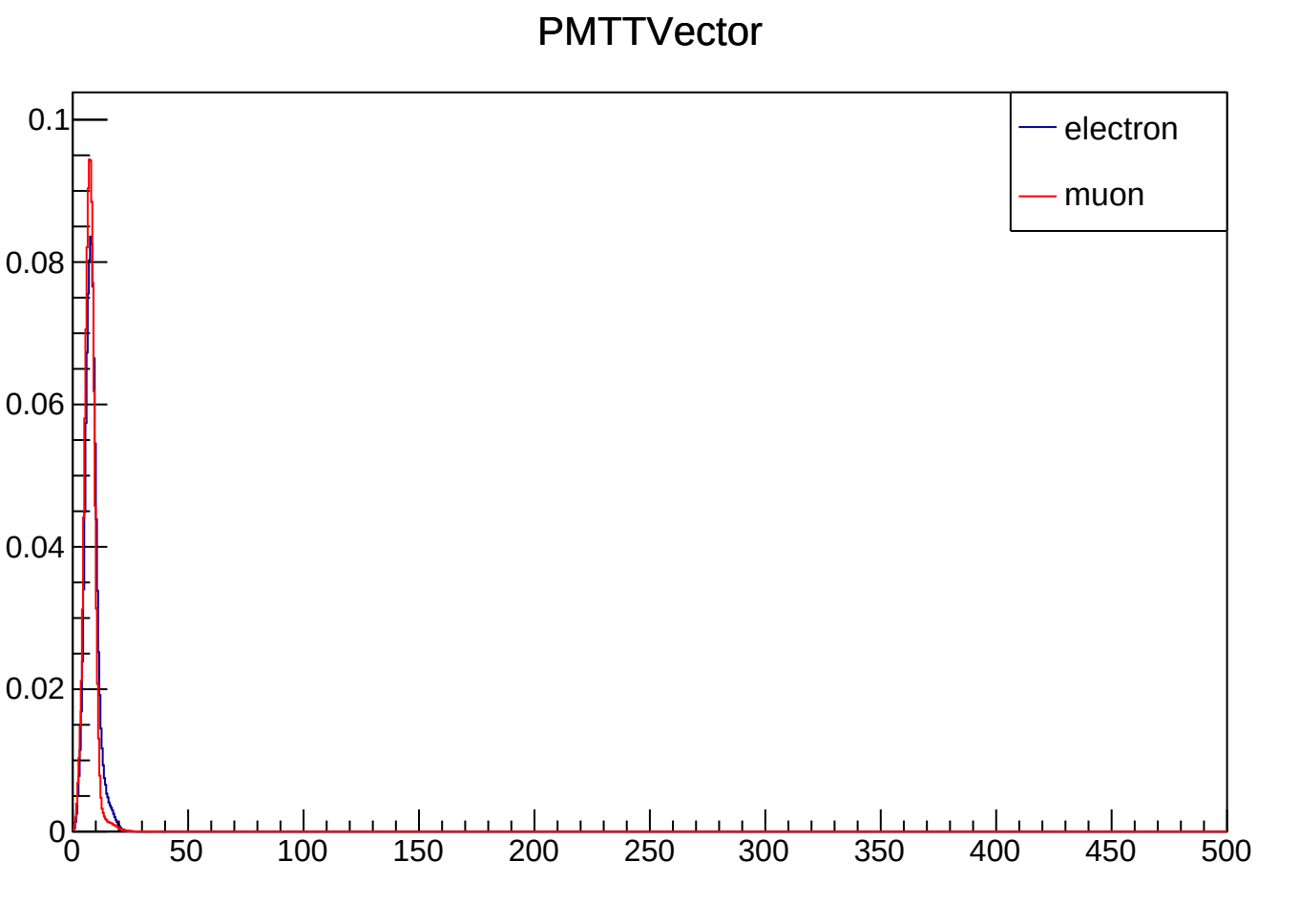
350
400
450
500


PMTTVector
electron
muon
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0.08
0.06
0.04
0.02
0
0
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150
200
250
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350
400
450
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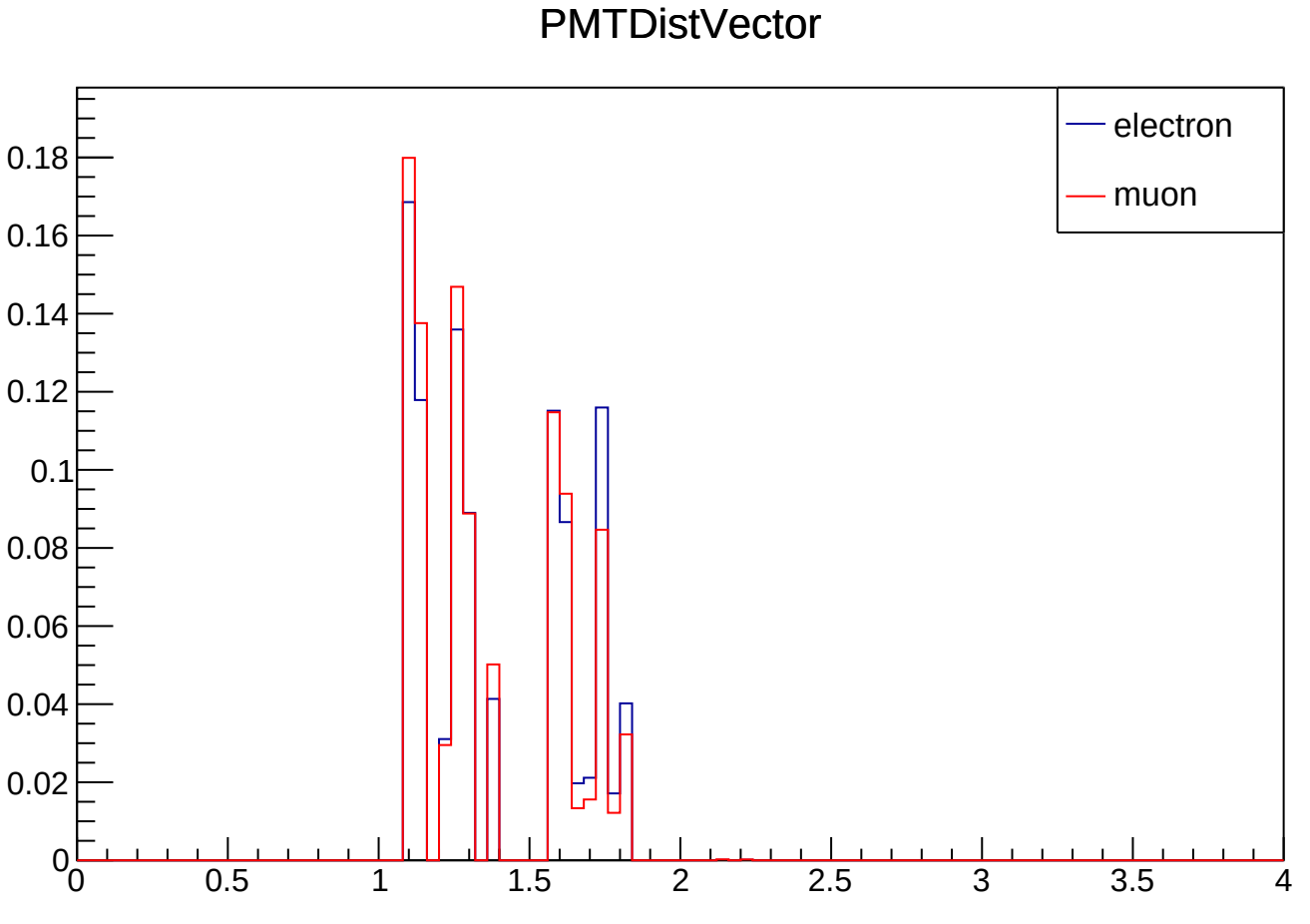
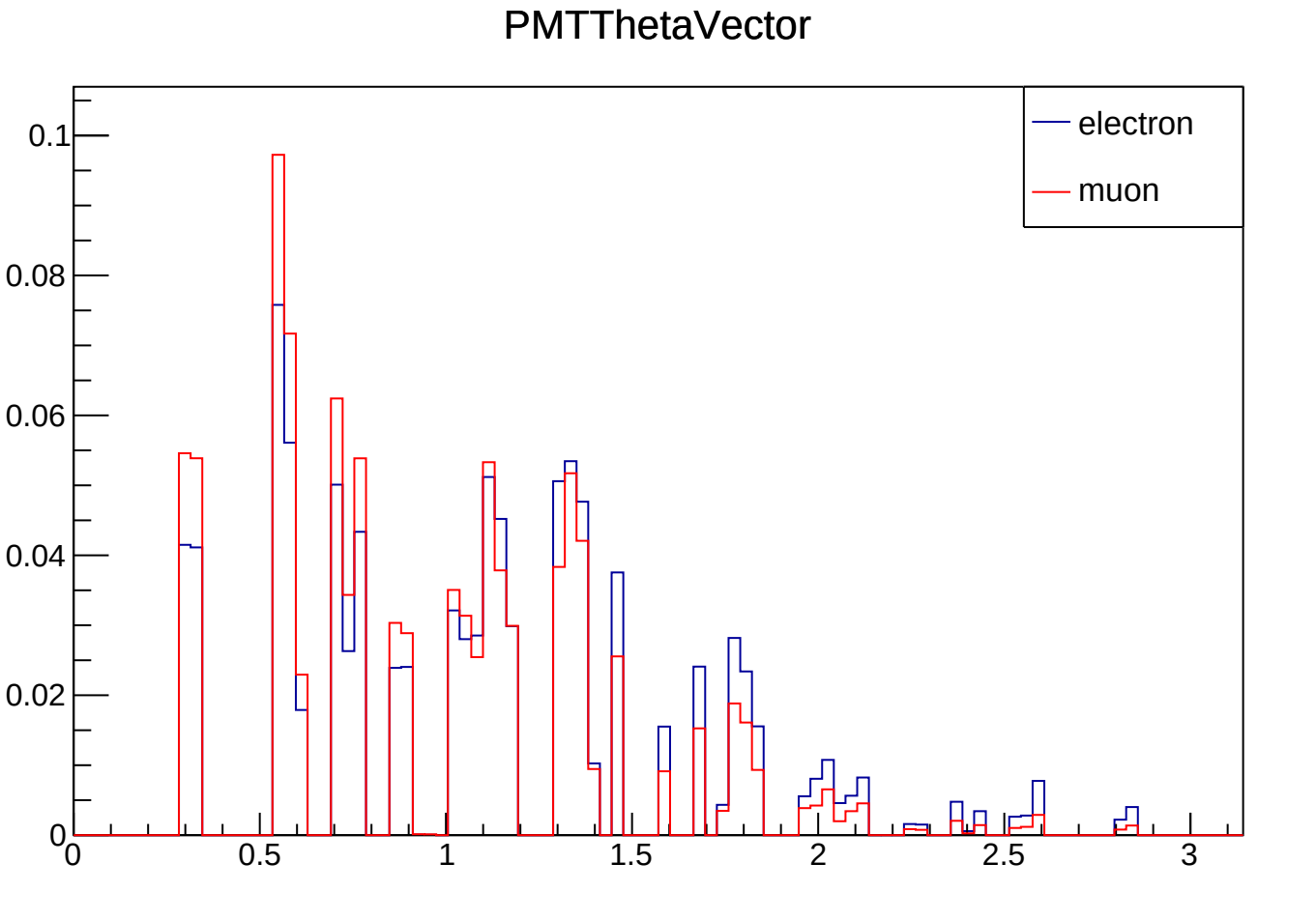

PMTDistVector
electron
muon
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
0.5
1
1.5
2
2.5
3
3.5
4


PMTThetaVector
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muon
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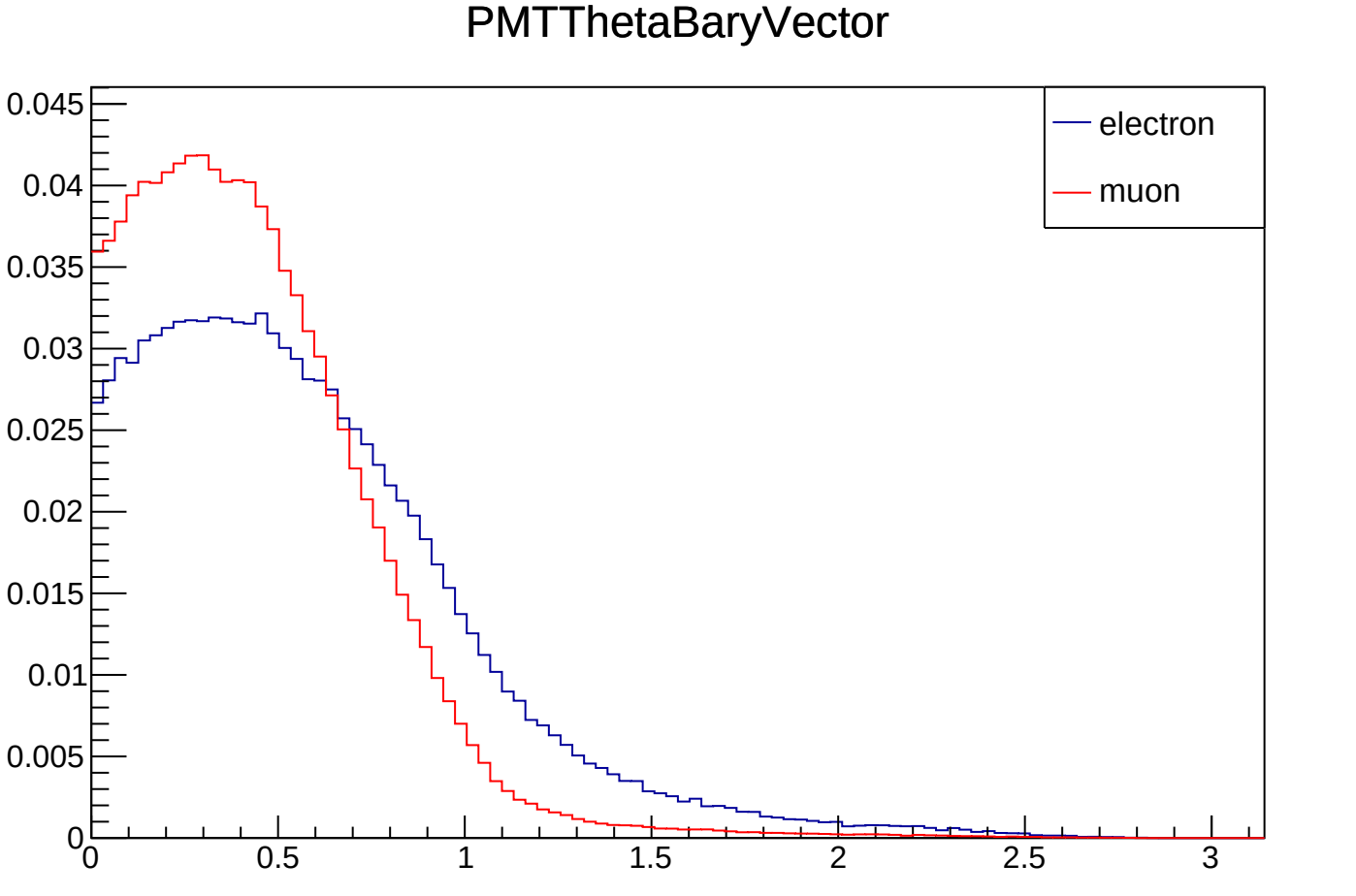
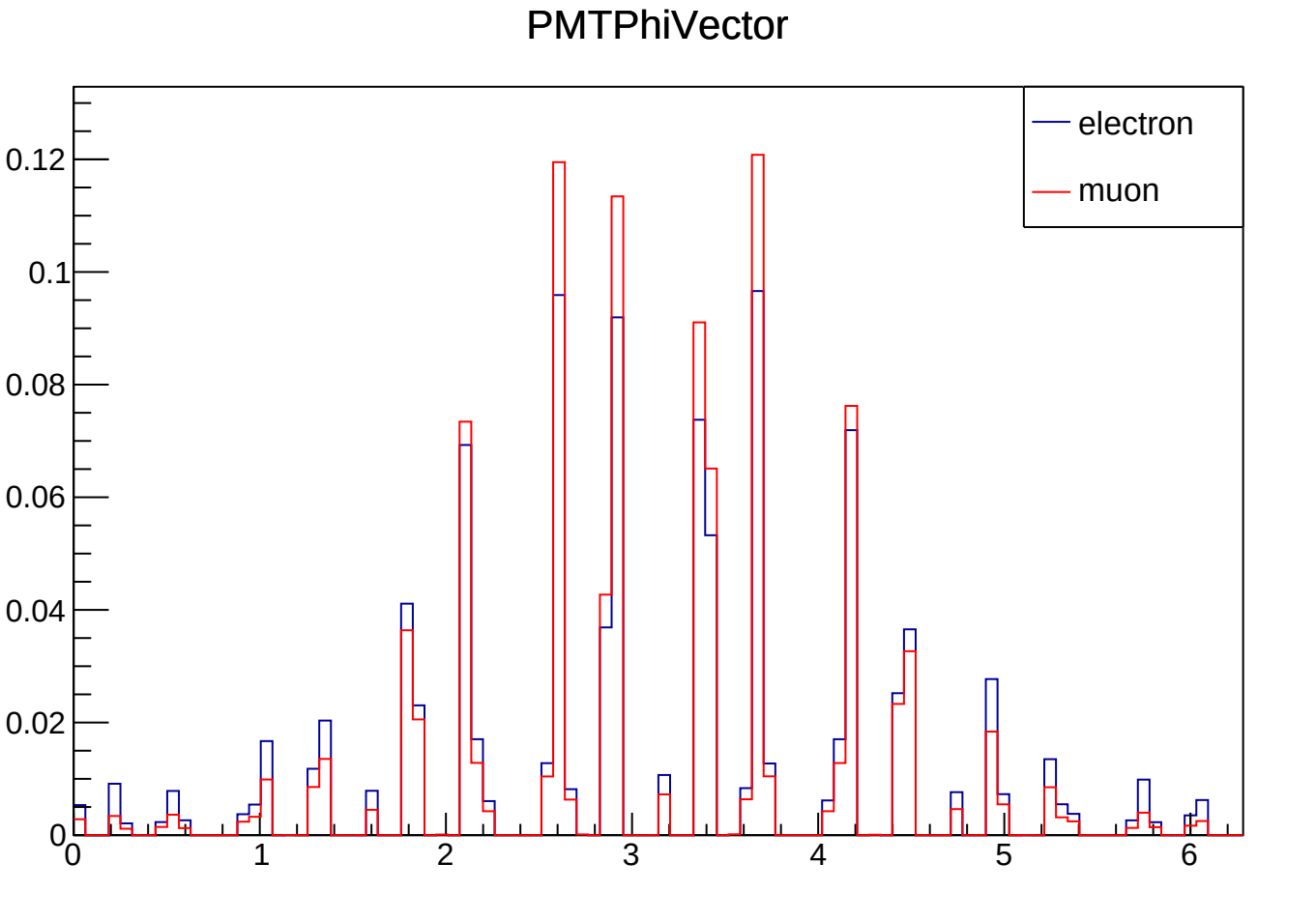
0.06
0.04
0.02
0
0
0.5
1
1.5
2
2.5
3


PMTThetaBaryVector
electron
muon
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0
0.5
1
1.5
2
2.5
3


PMTPhiVector
electron
muon
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0.08
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0.04
0.02
0
0
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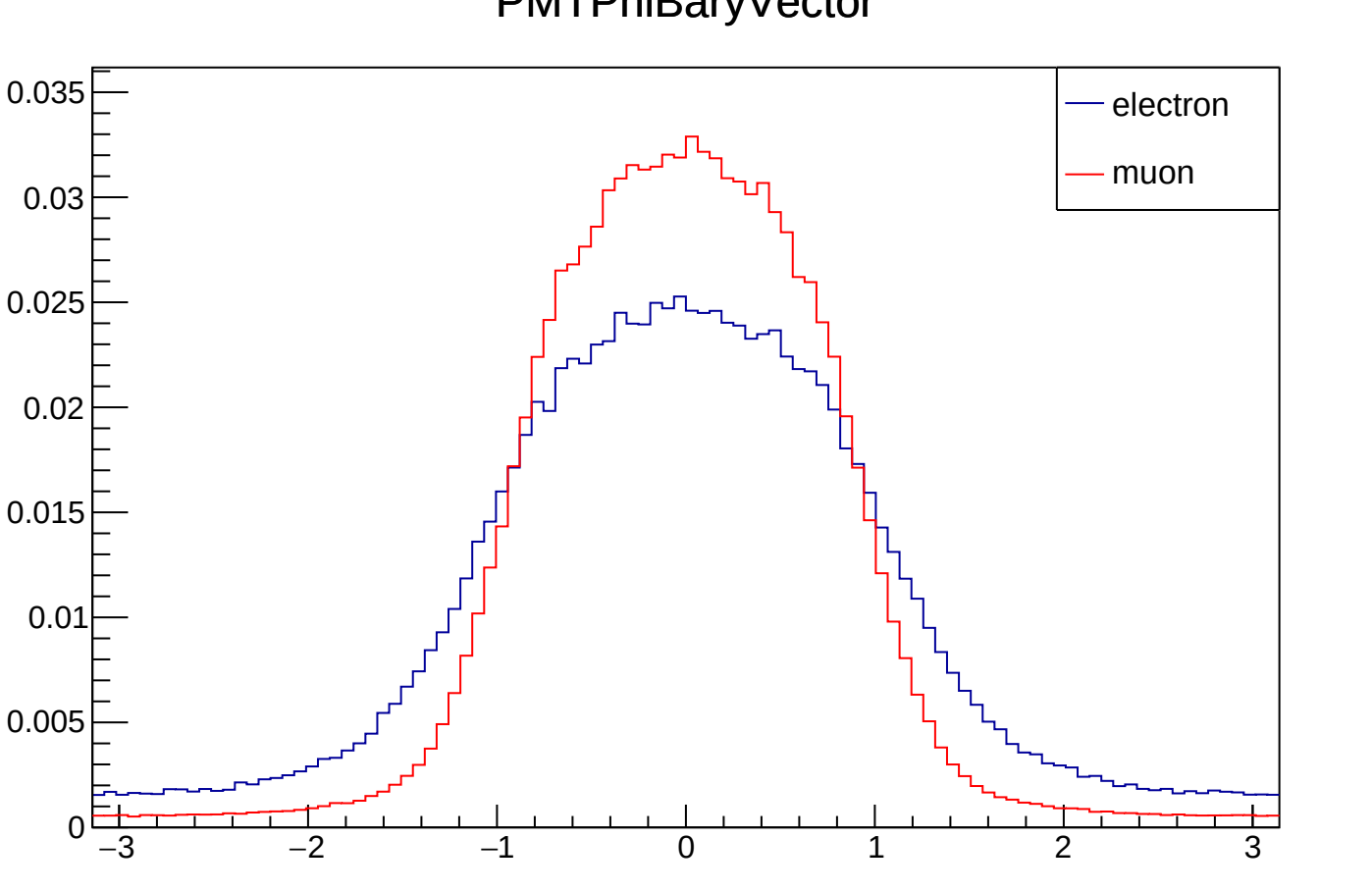
5
6


PMTPhiBaryVector
electron
muon
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0.03
0.025
0.02
0.015
0.01
0.005
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−3
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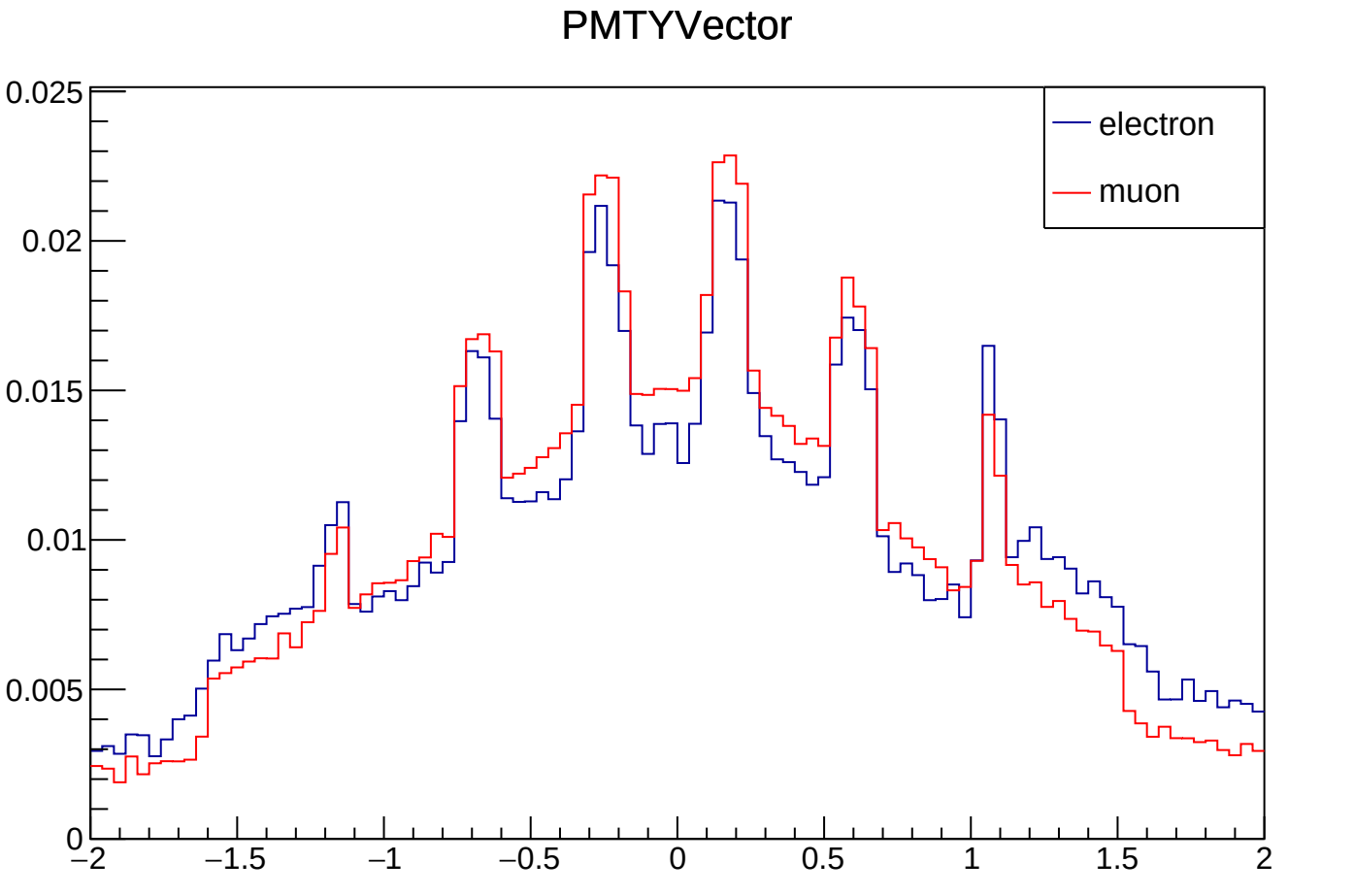
−1
0
1
2
3


PMTYVector
electron
muon
0.025
0.02
0.015
0.01
0.005
0
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−1
−0.5
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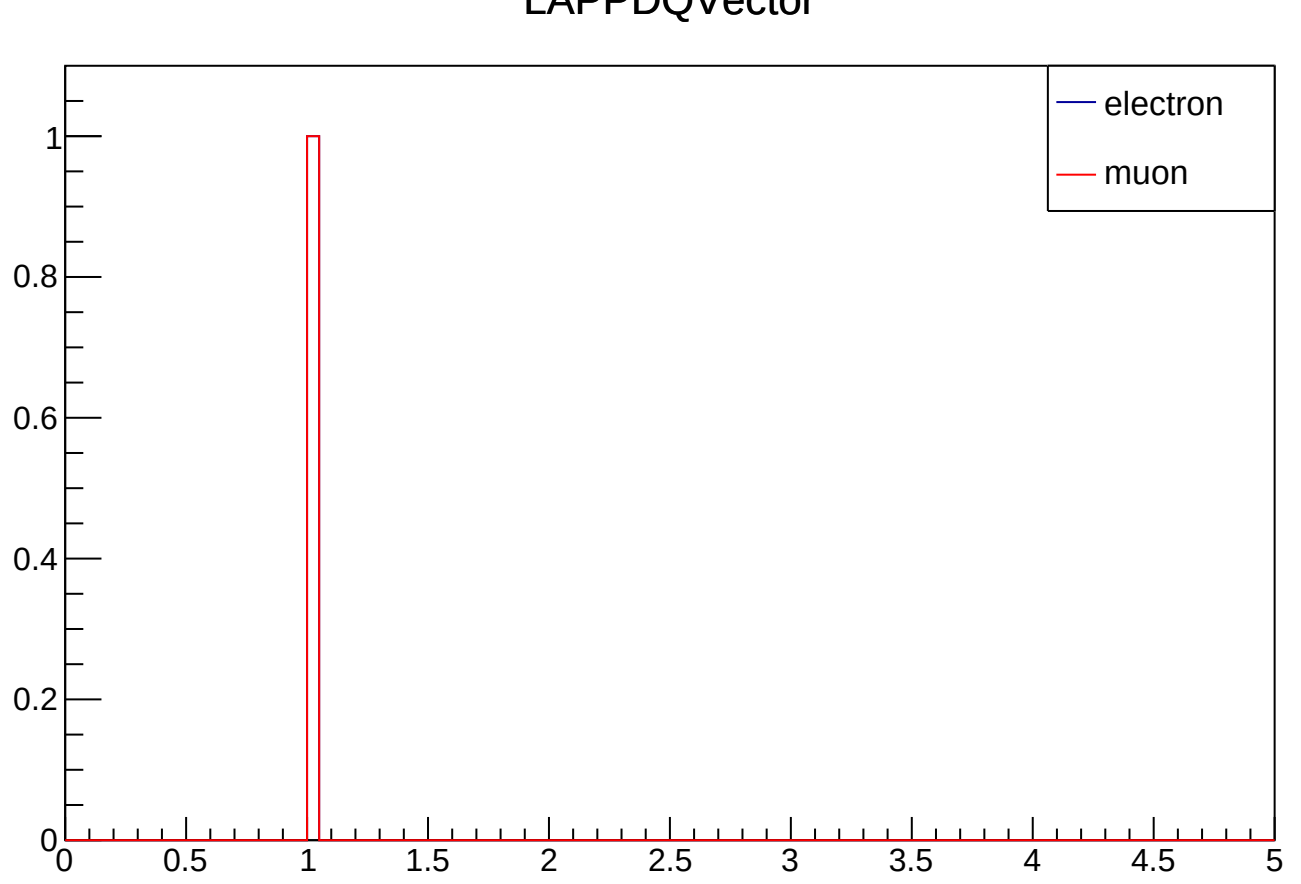
0.5
1
1.5
2


LAPPDQVector
electron
muon
1
0.8
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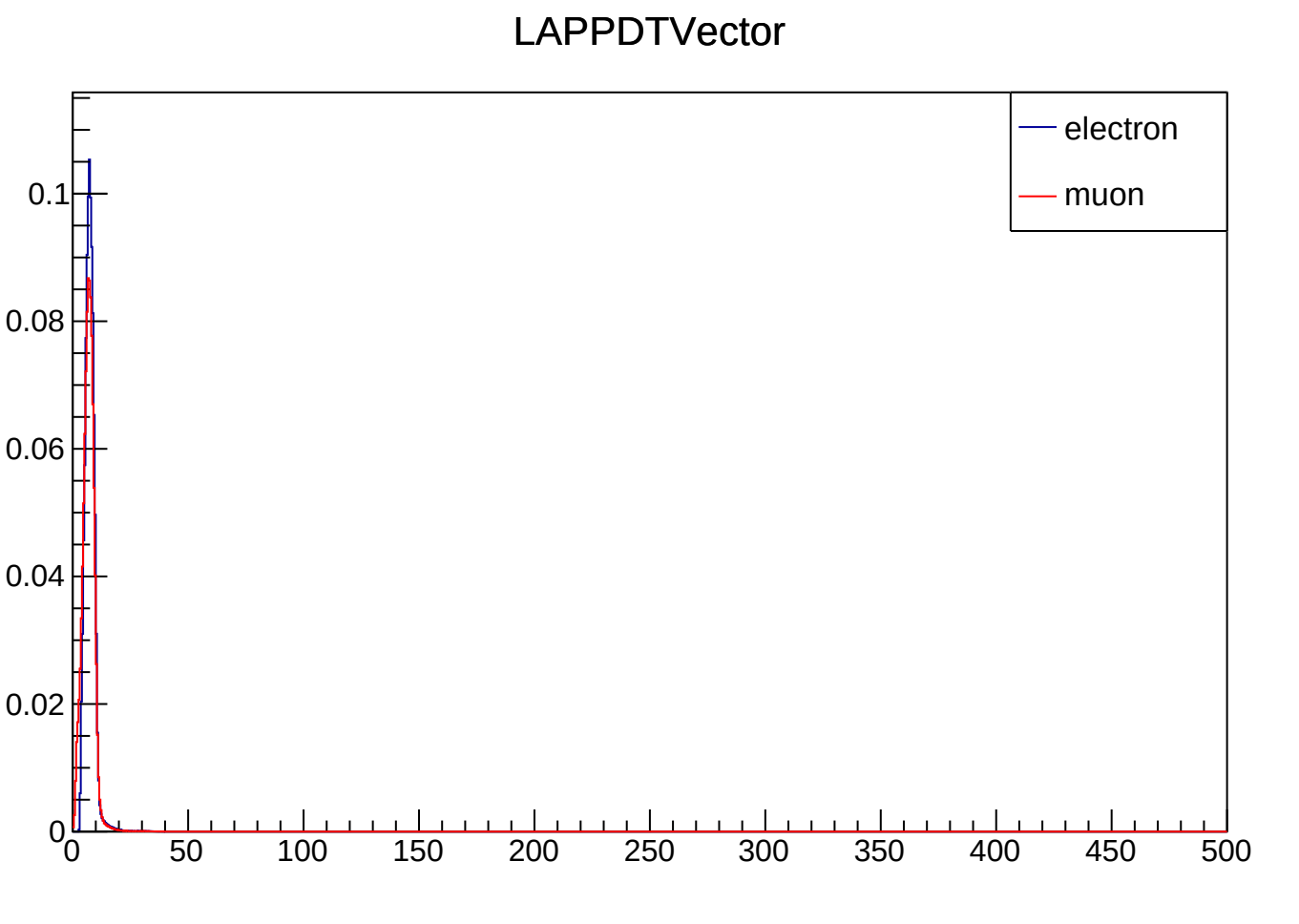
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5


LAPPDTVector
electron
muon
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0.04
0.02
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200
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350
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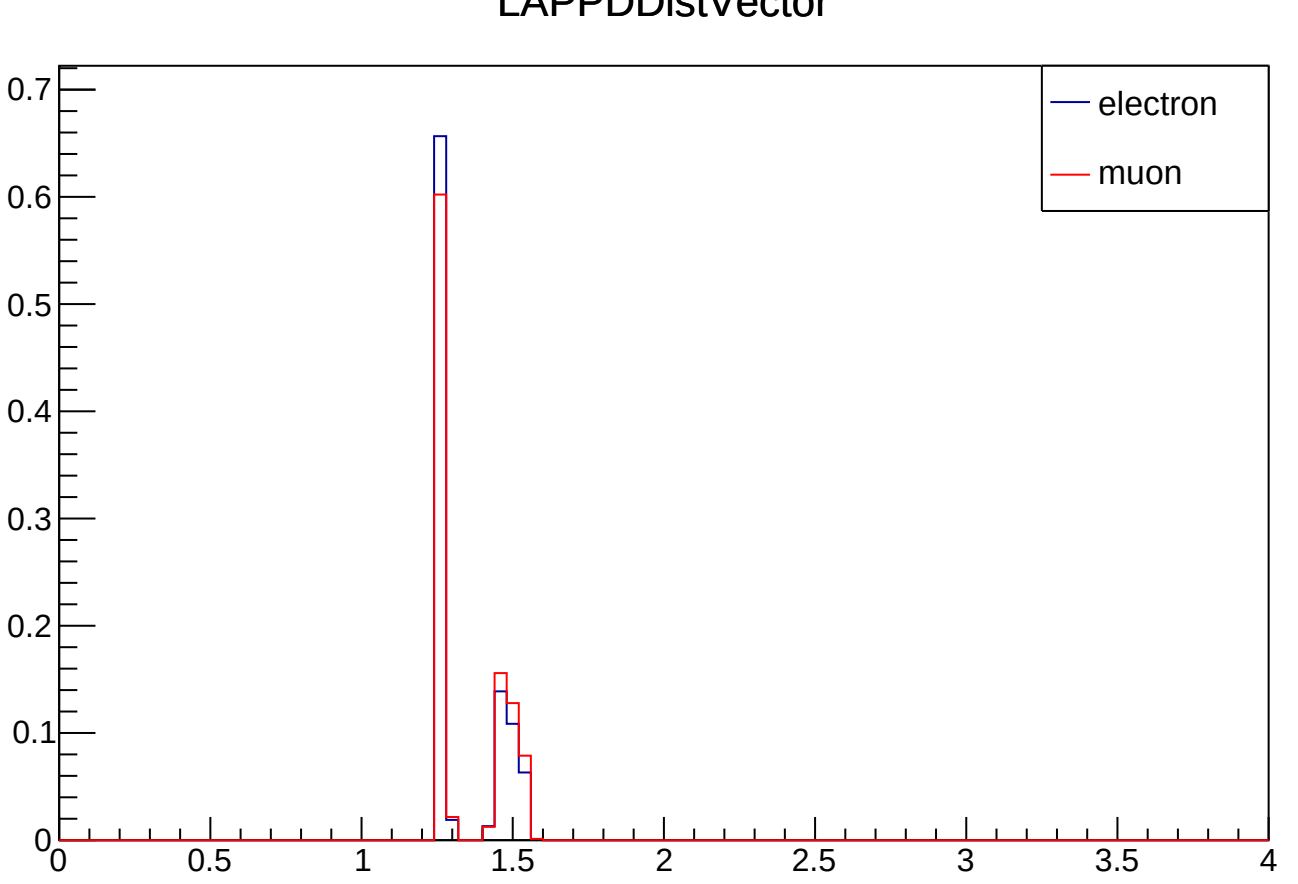
450
500


LAPPDDistVector
electron
muon
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0.6
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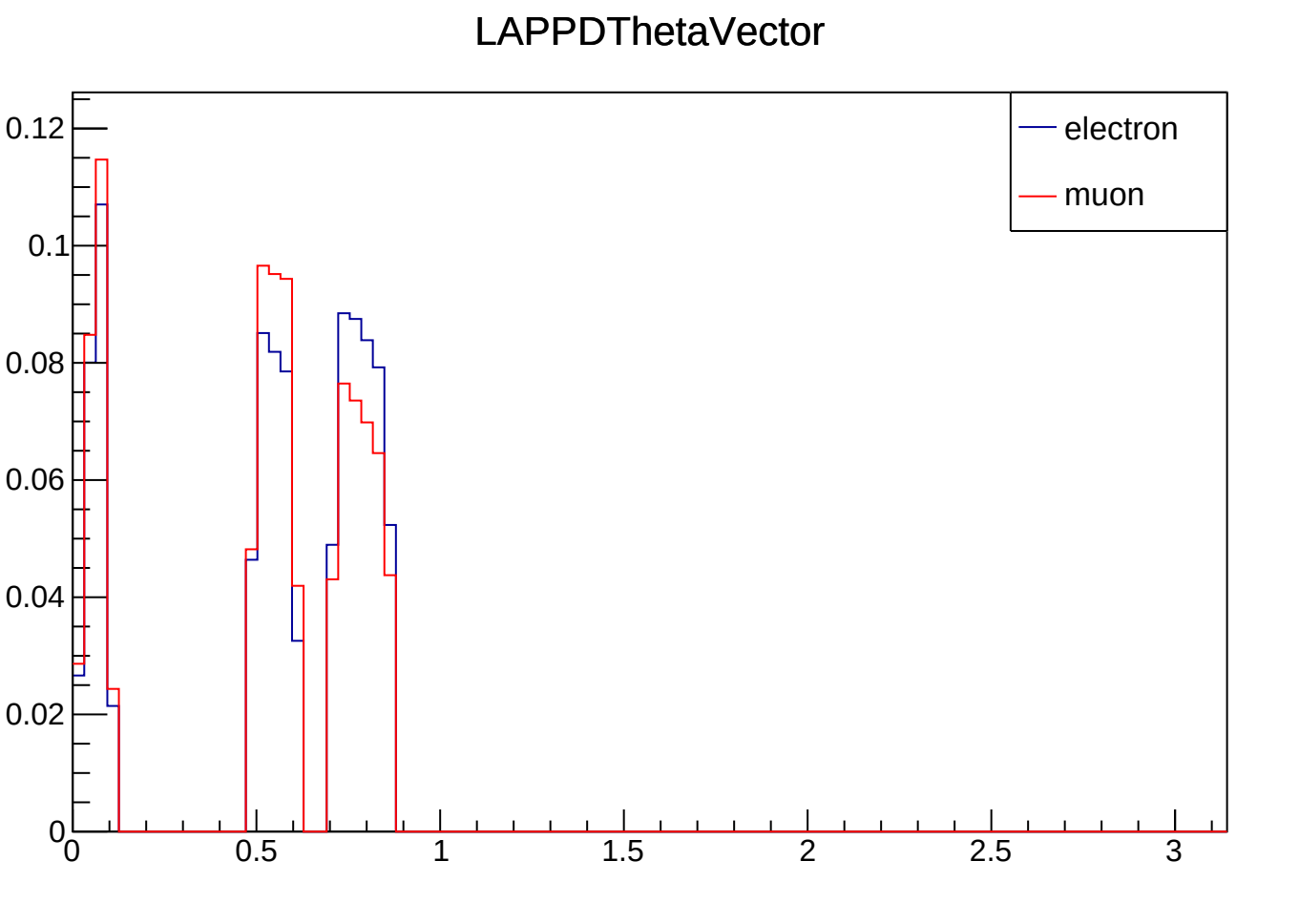
0.2
0.1
0
0
0.5
1
1.5
2
2.5
3
3.5
4


LAPPDThetaVector
electron
muon
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0.1
0.08
0.06
0.04
0.02
0
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0.5
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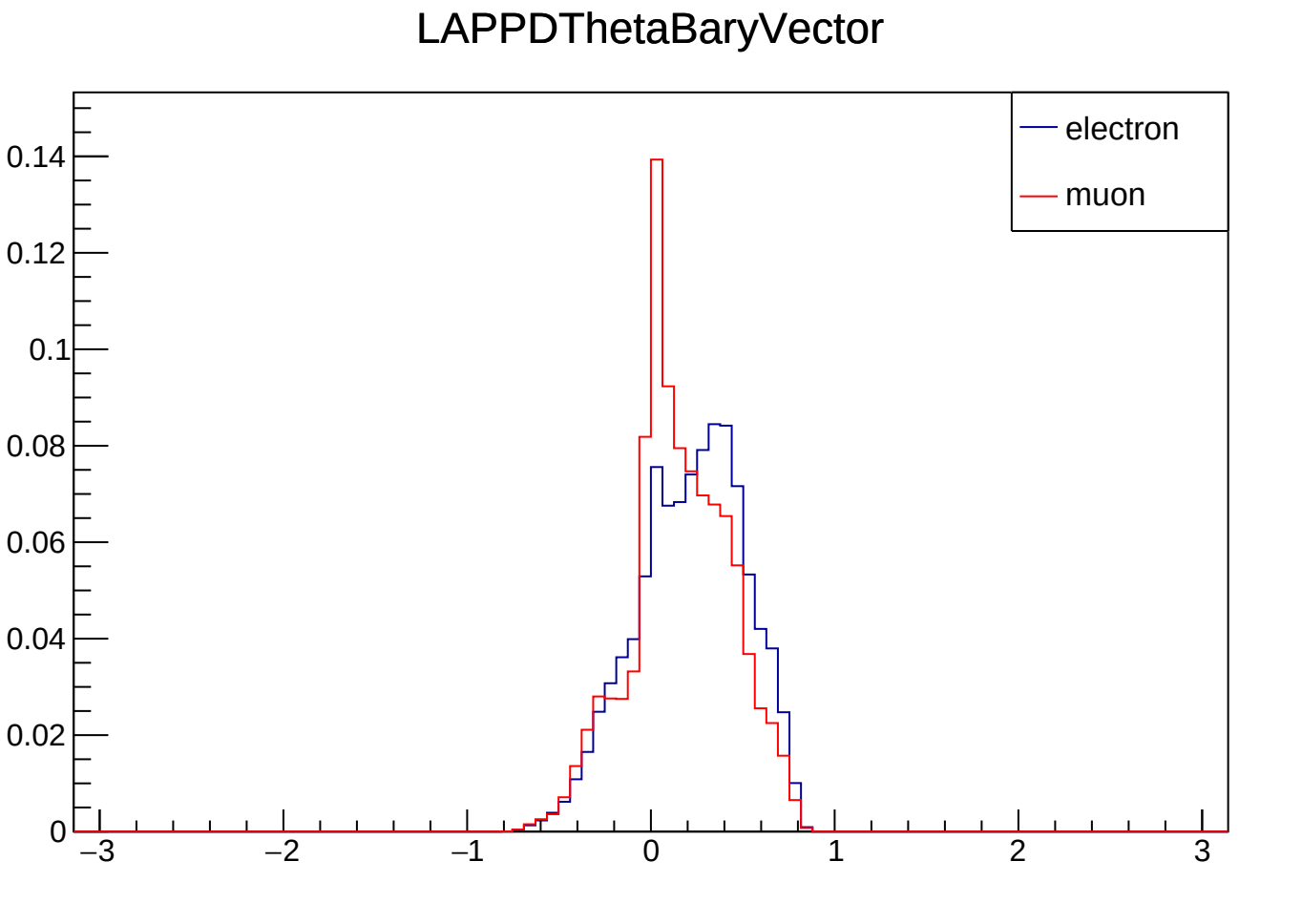
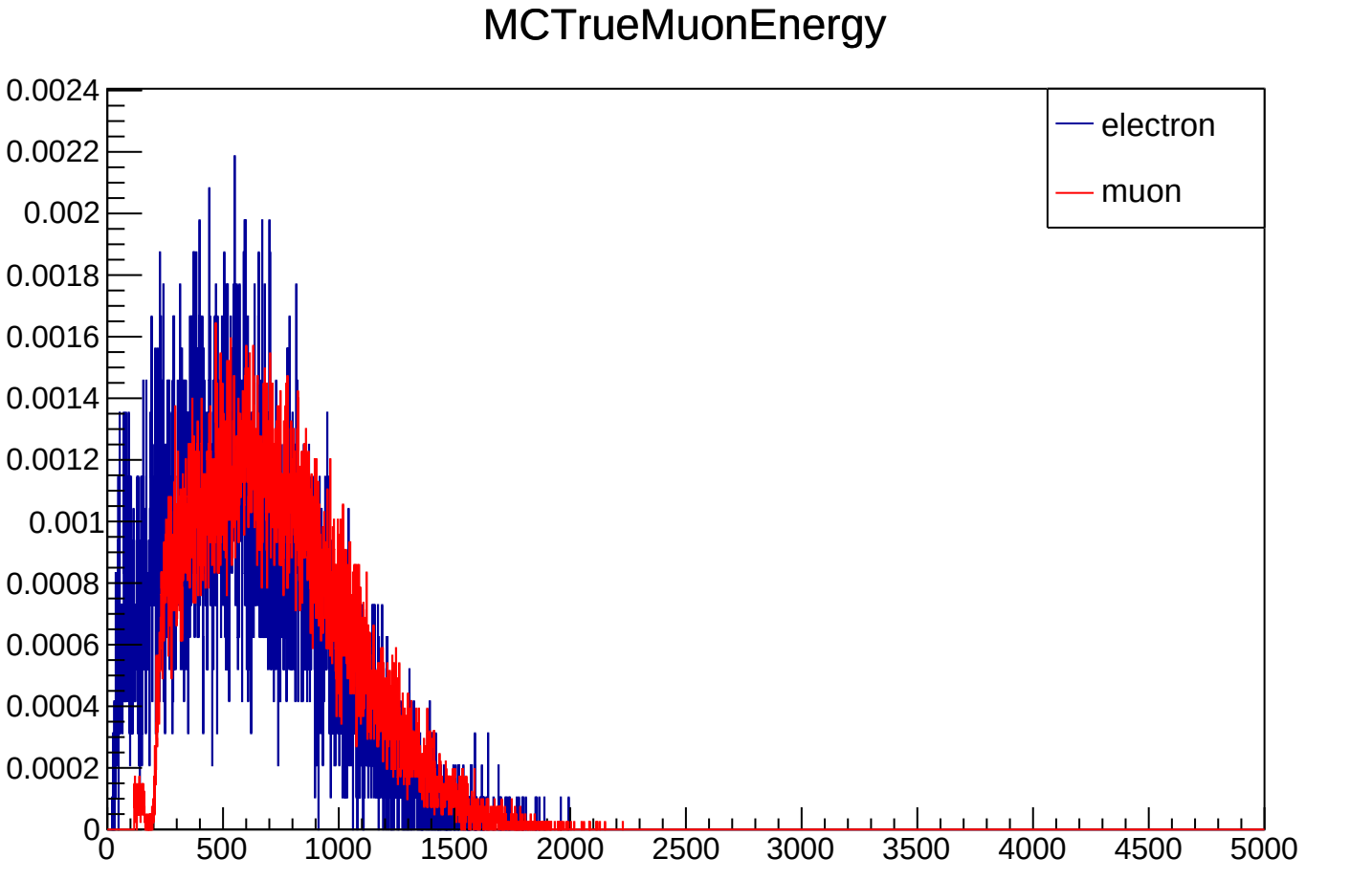
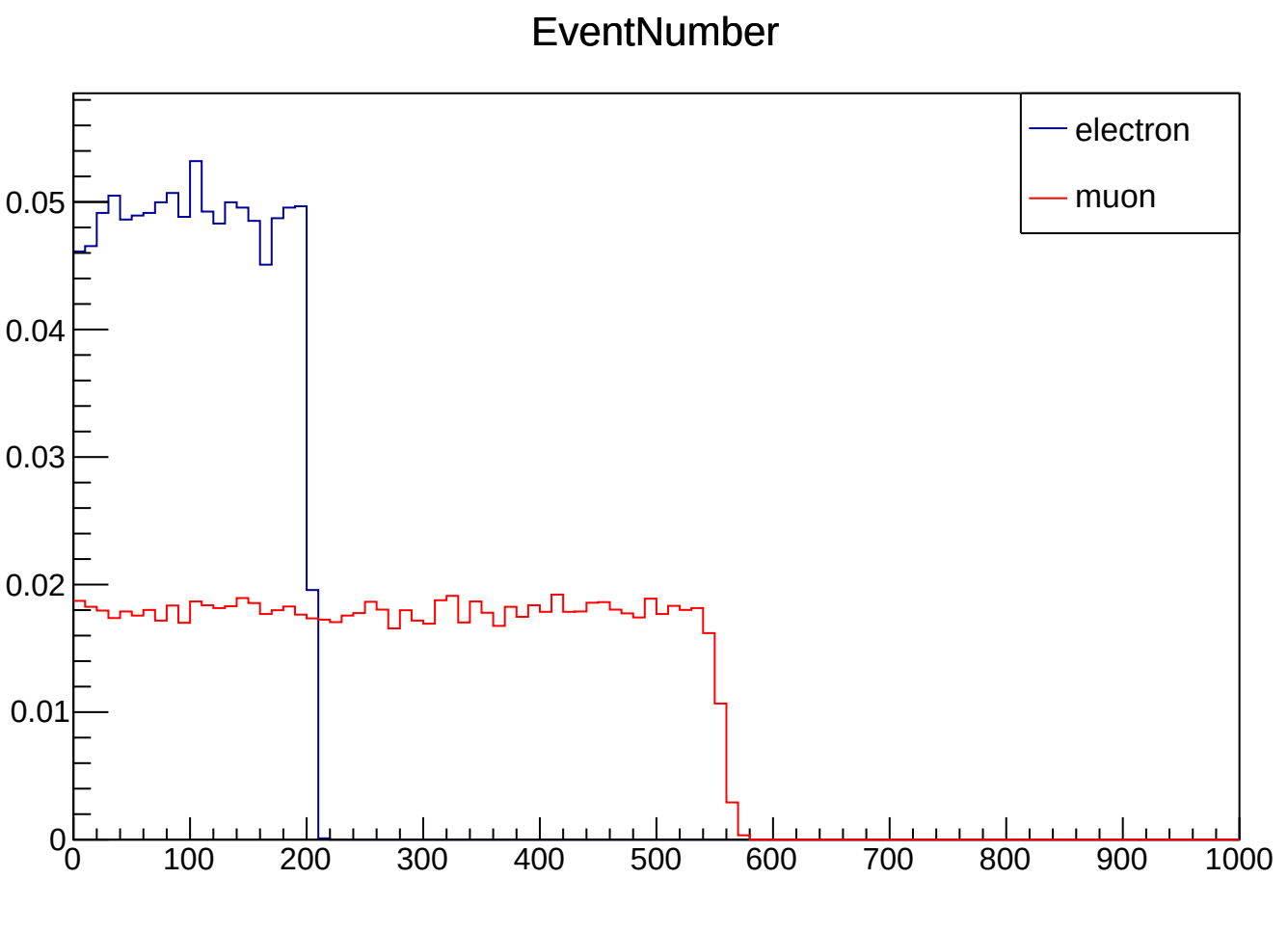
1.5
2
2.5
3


LAPPDThetaBaryVector
electron
muon
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
−3
−2
−1
0
1
2
3


MCTrueMuonEnergy
electron
muon
0.0024
0.0022
0.002
0.0018
0.0016
0.0014
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000


EventNumber
electron
muon
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0.04
0.03
0.02
0.01
0
0
100
200
300
400
500
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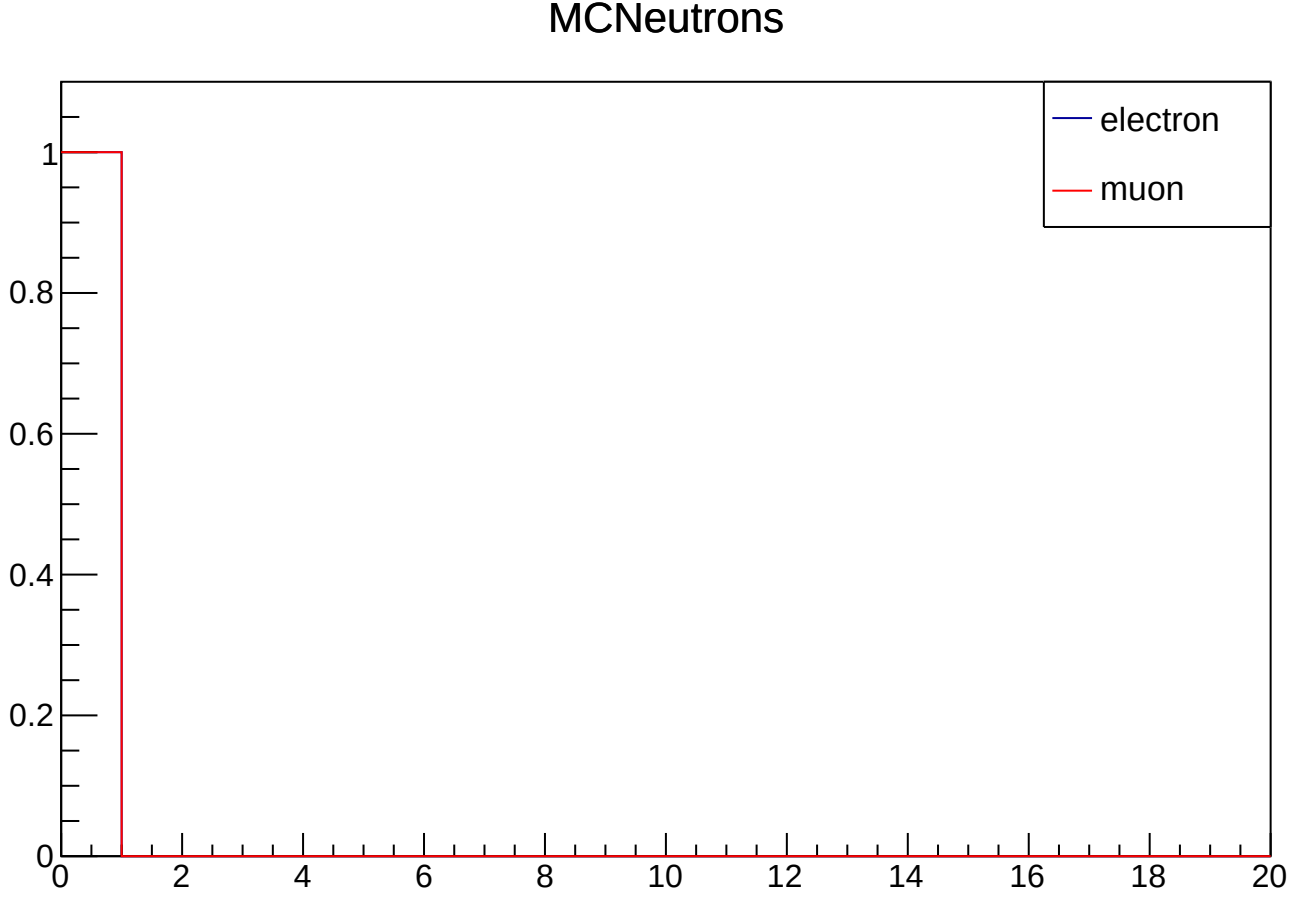
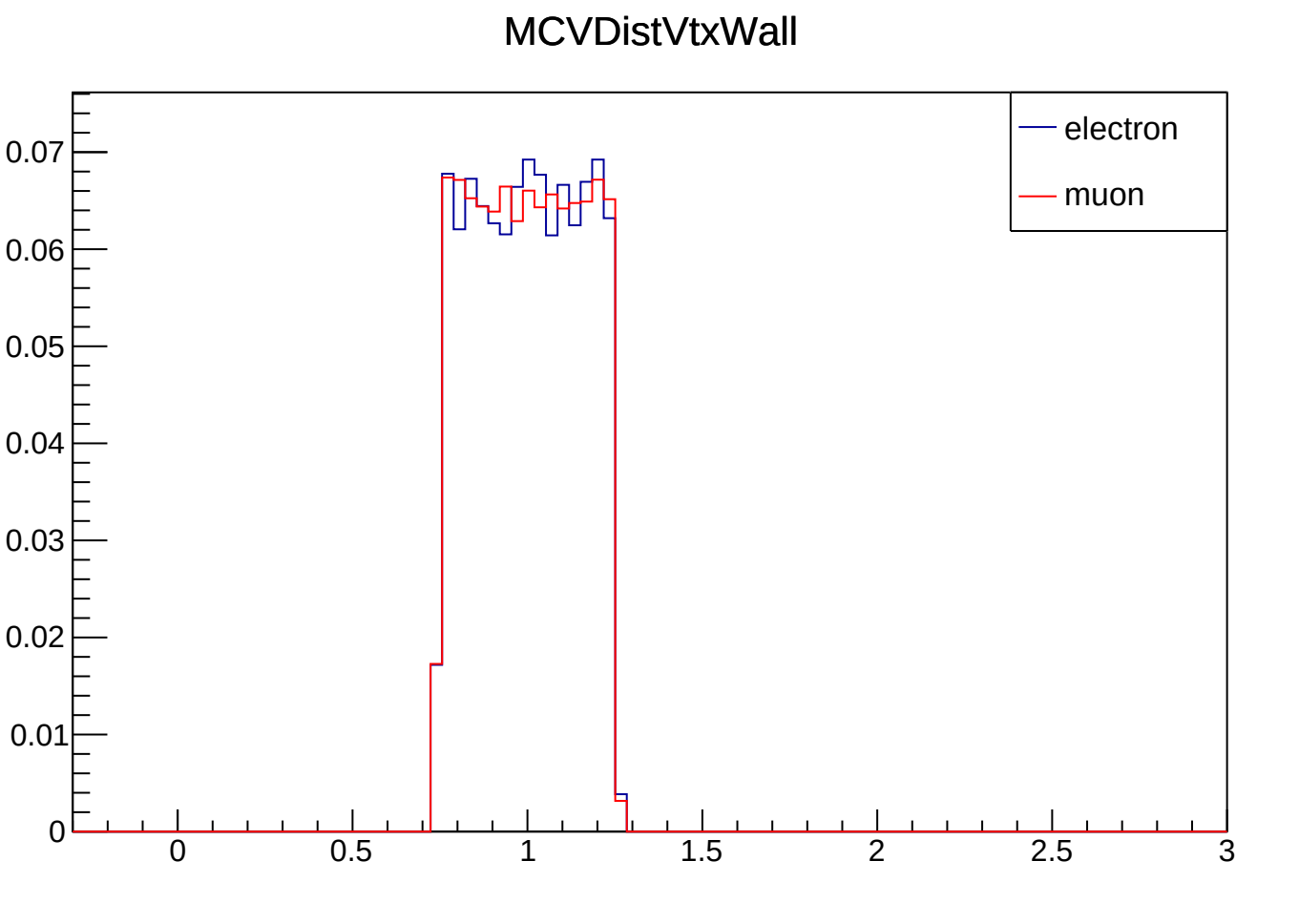
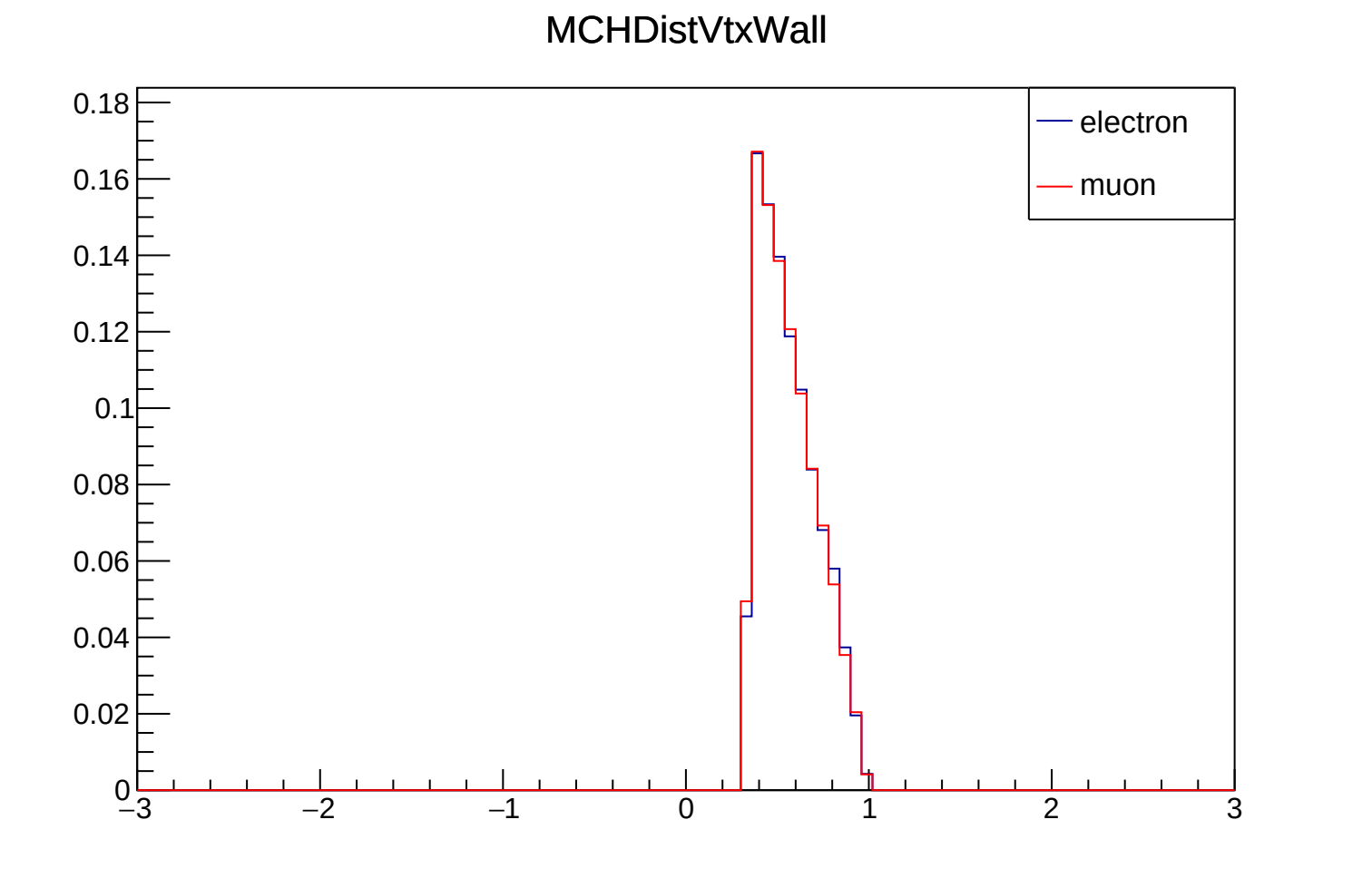
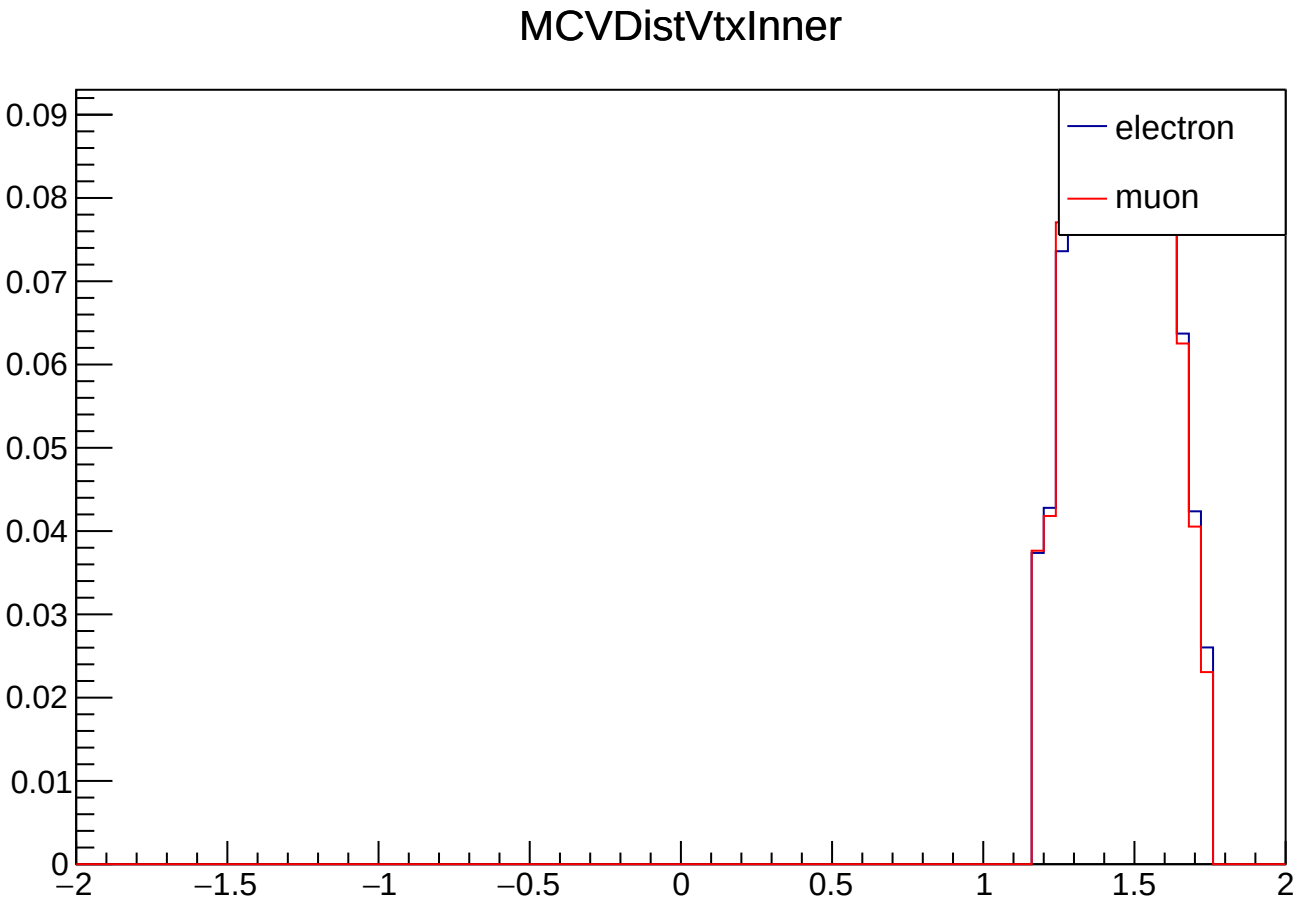
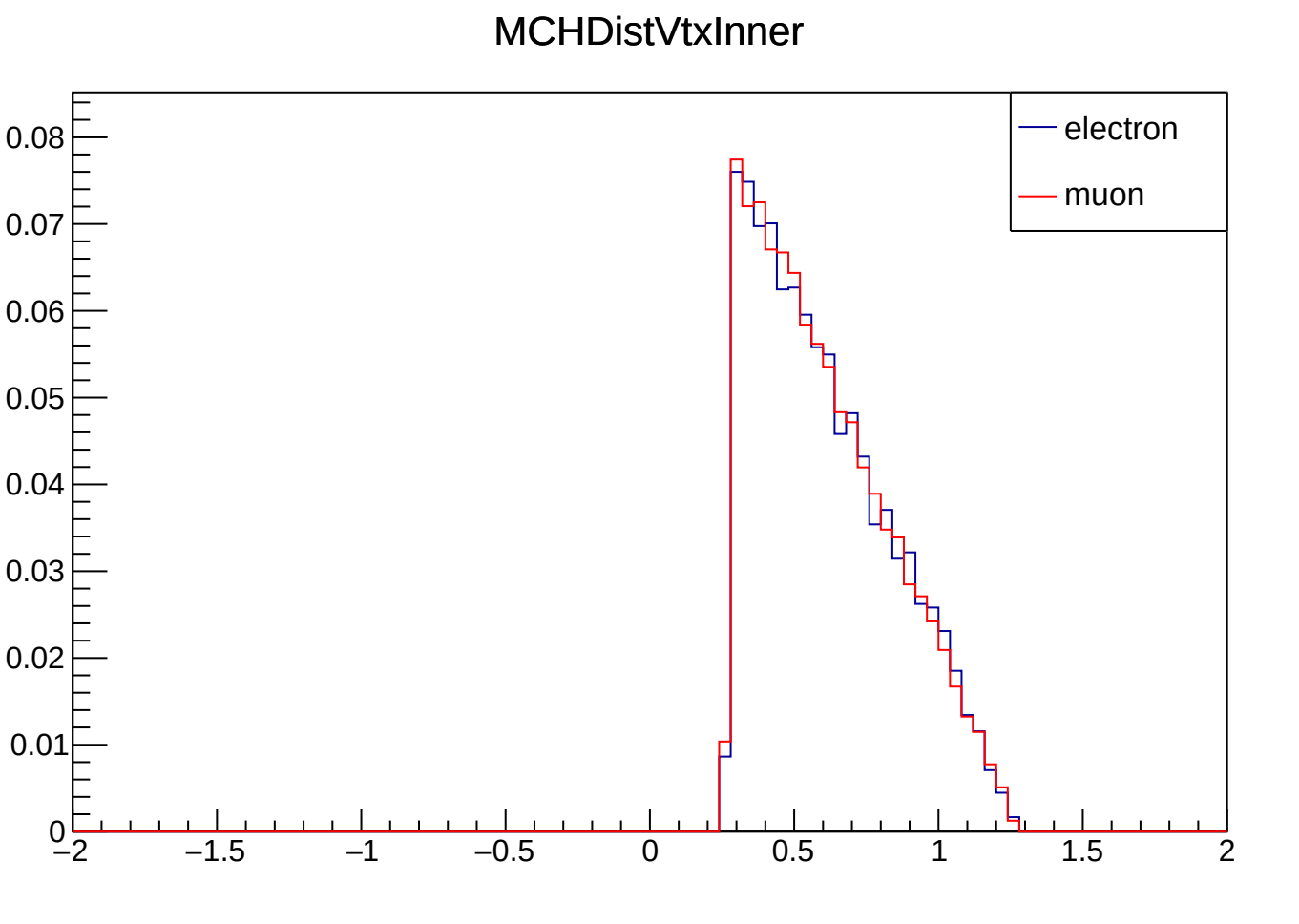
700
800
900
1000

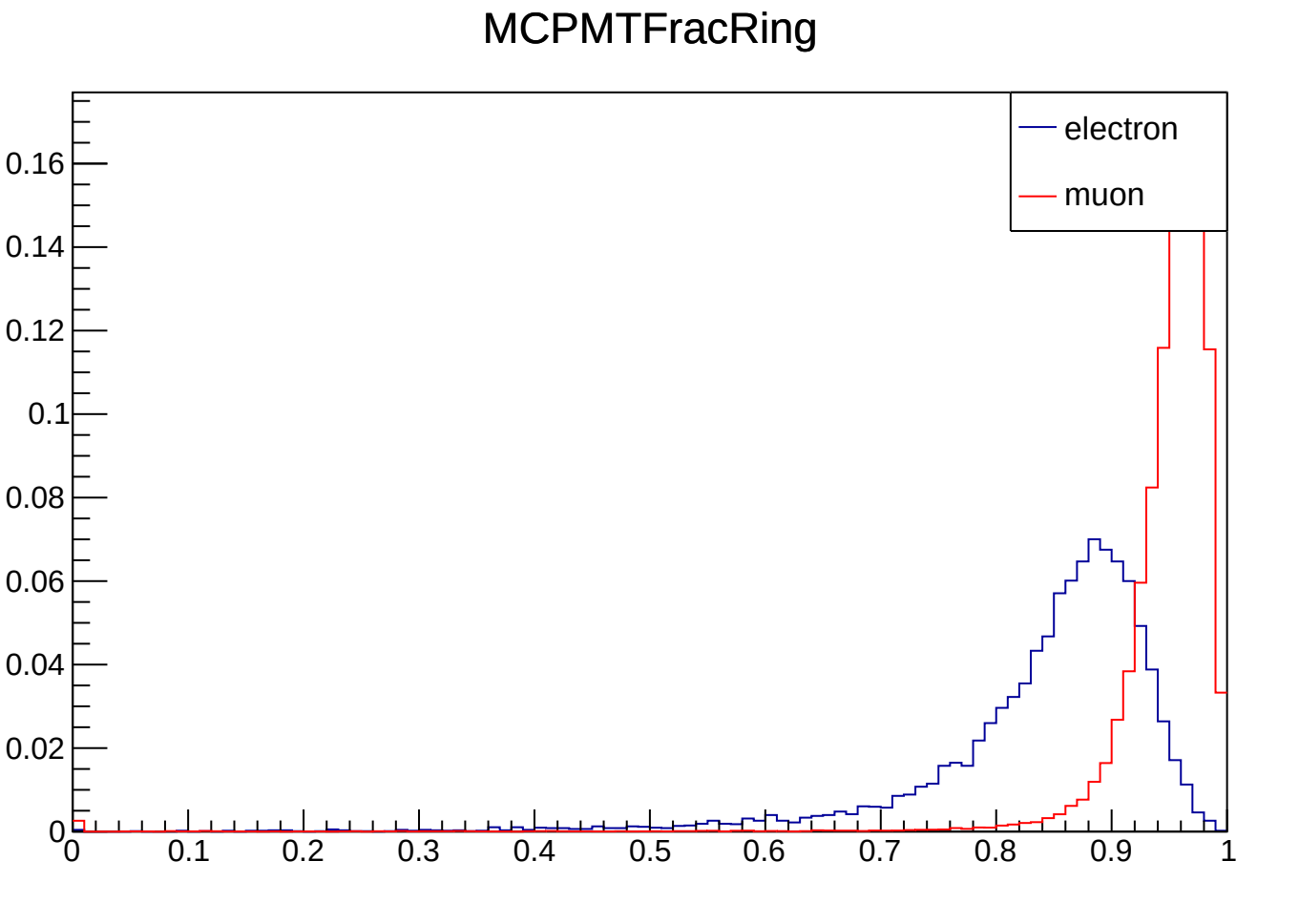

MCNeutrons
electron
muon
1
0.8
0.6
0.4
0.2
0
0
2
4
6
8
10
12
14
16
18
20


MCVDistVtxWall
electron
muon
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
0
0.5
1
1.5
2
2.5
3


MCHDistVtxWall
electron
muon
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
−3
−2
−1
0
1
2
3


MCVDistVtxInner
electron
muon
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2


MCHDistVtxInner
electron
muon
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2


MCPMTFracRing
electron
muon
0.16
0.14
0.12
0.1
0.08
0.06
0.04
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0.9
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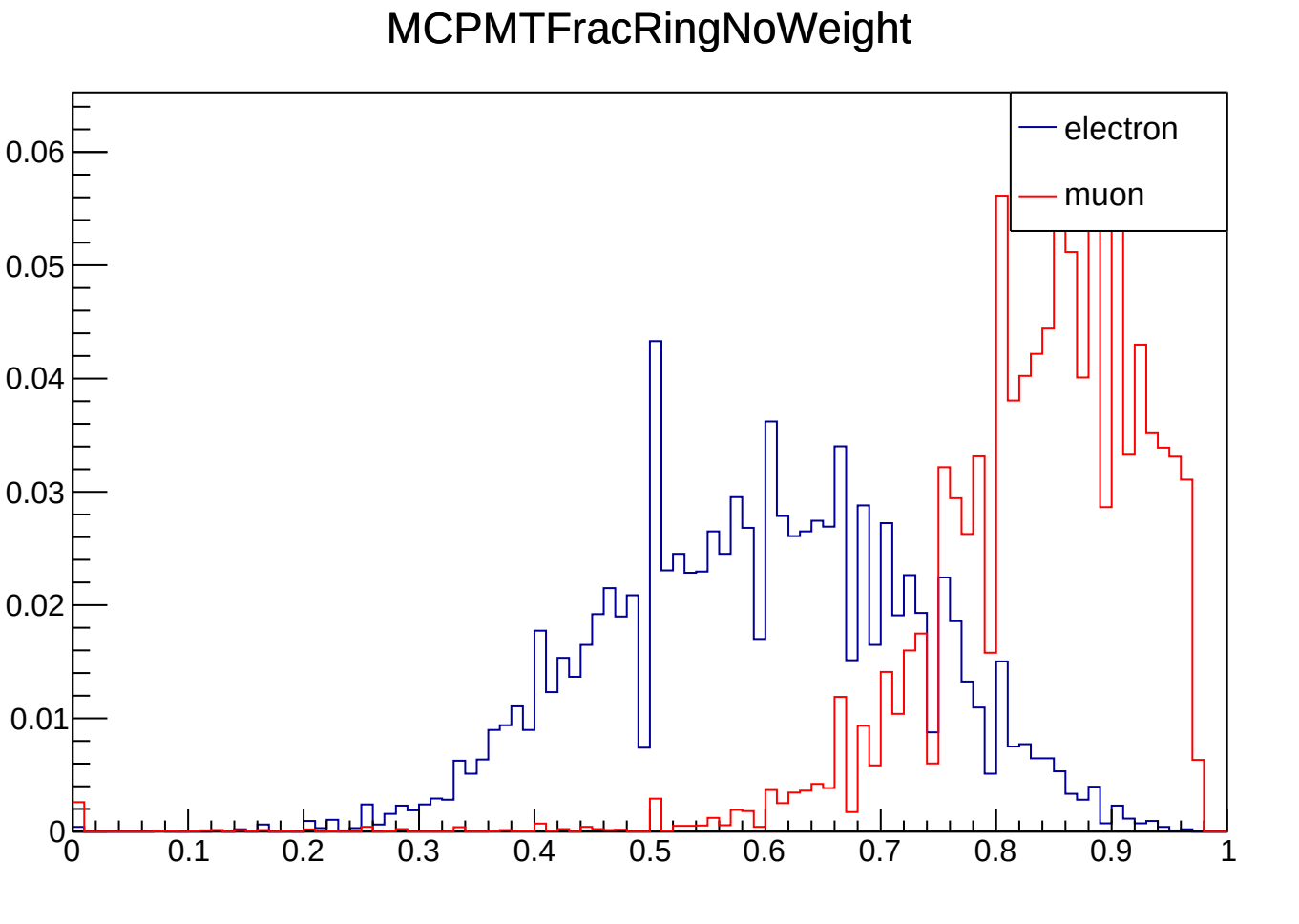
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electron
muon
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0.05
0.04
0.03
0.02
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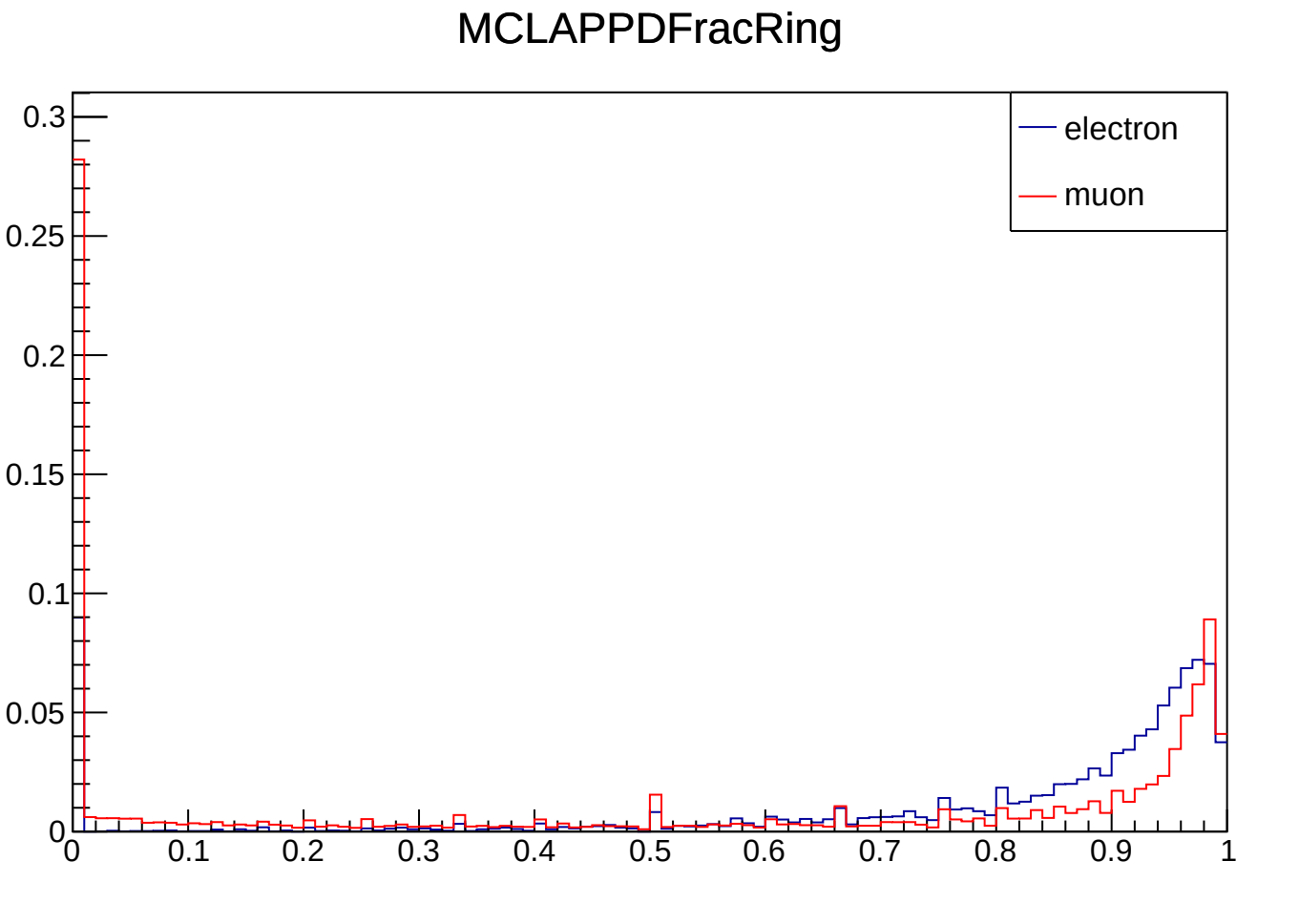
MCLAPPDFracRing
electron
muon
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0.1
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0.6
0.7
0.8
0.9
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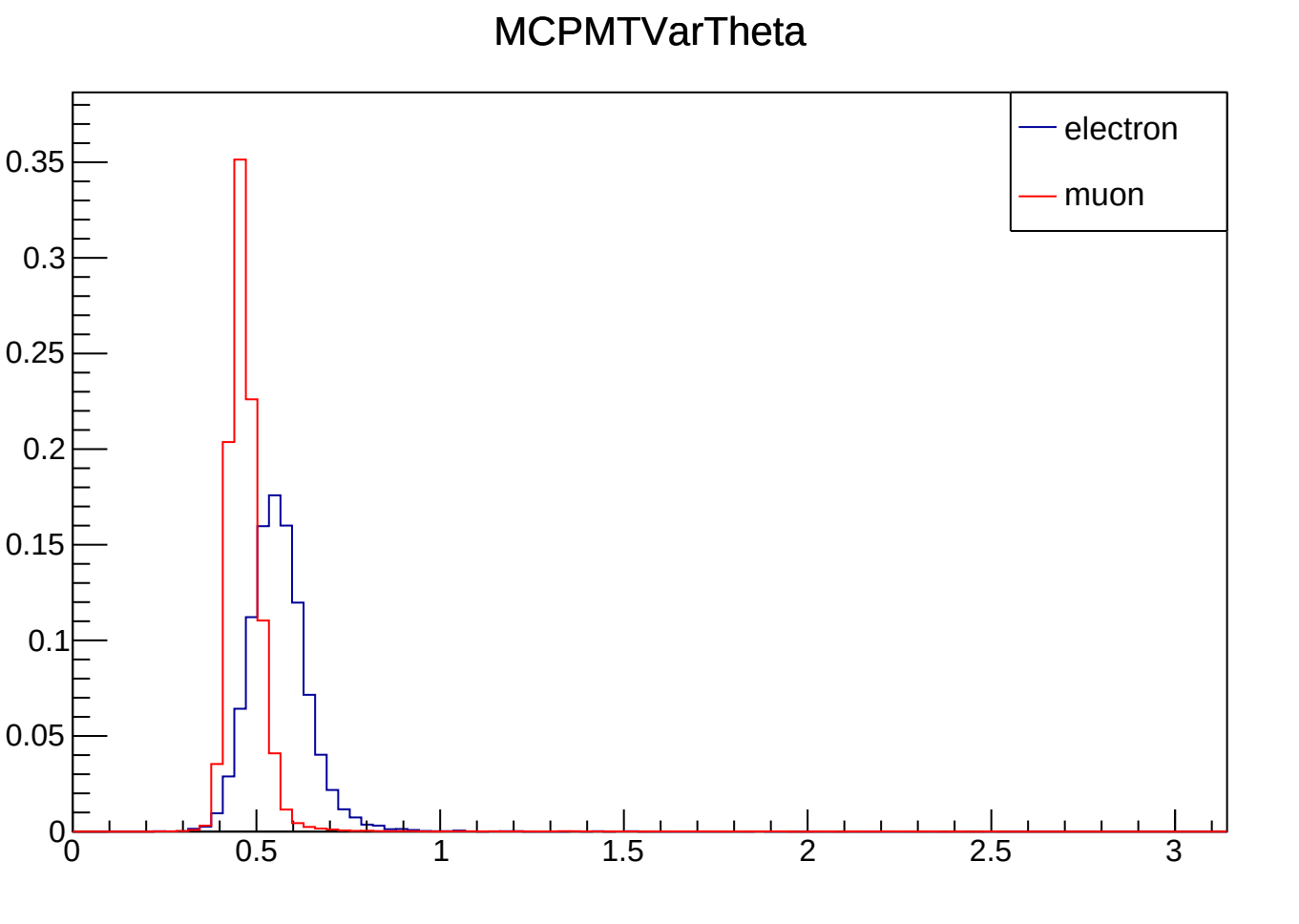
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muon
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0.5
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2
2.5
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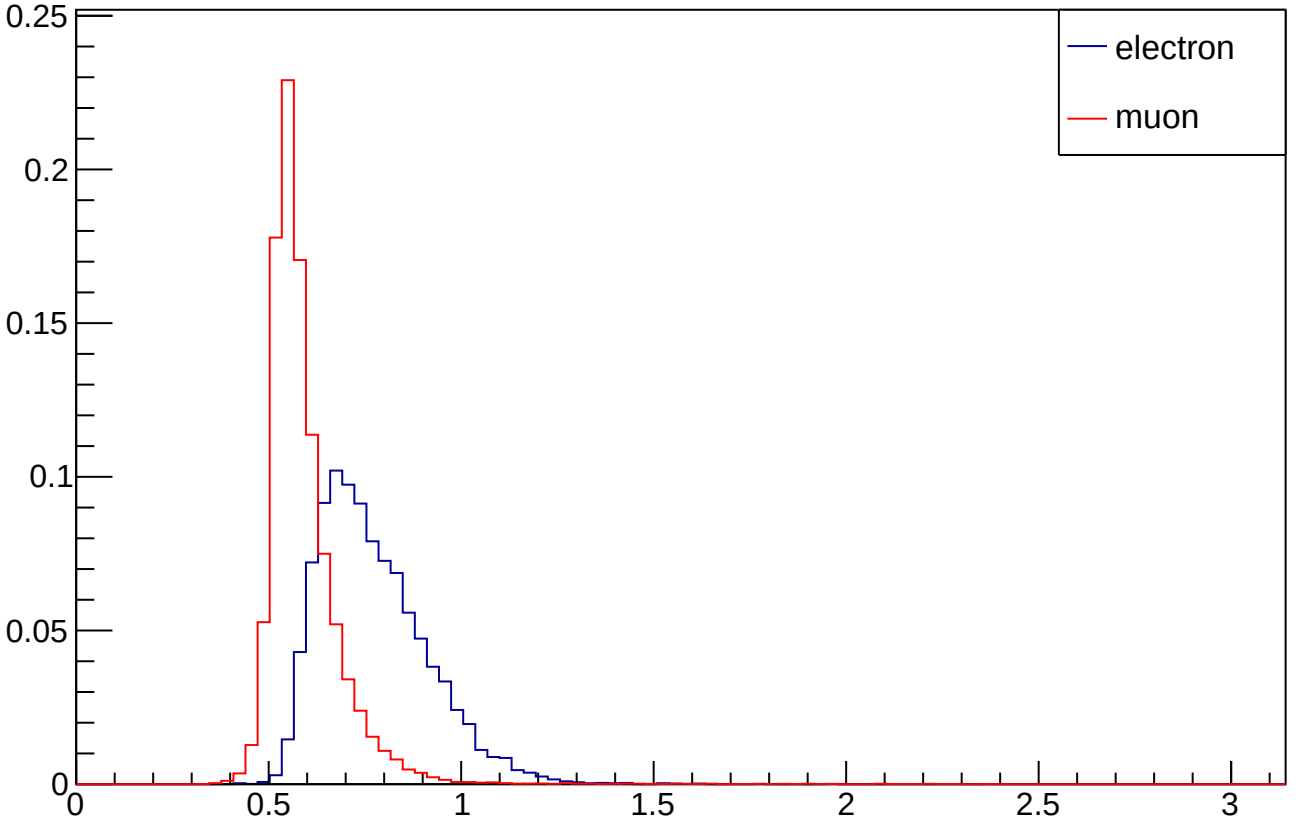
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muon
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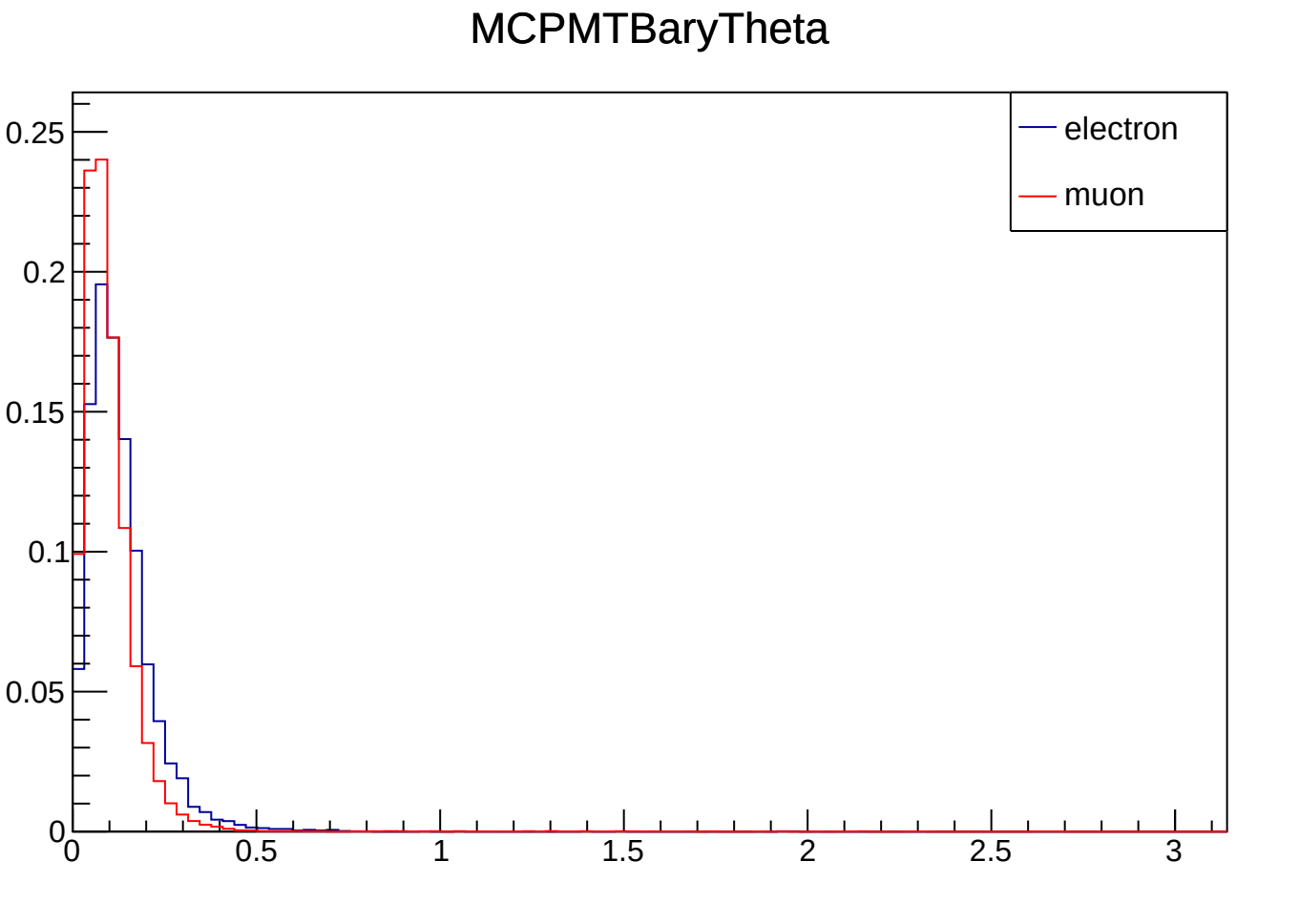
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muon
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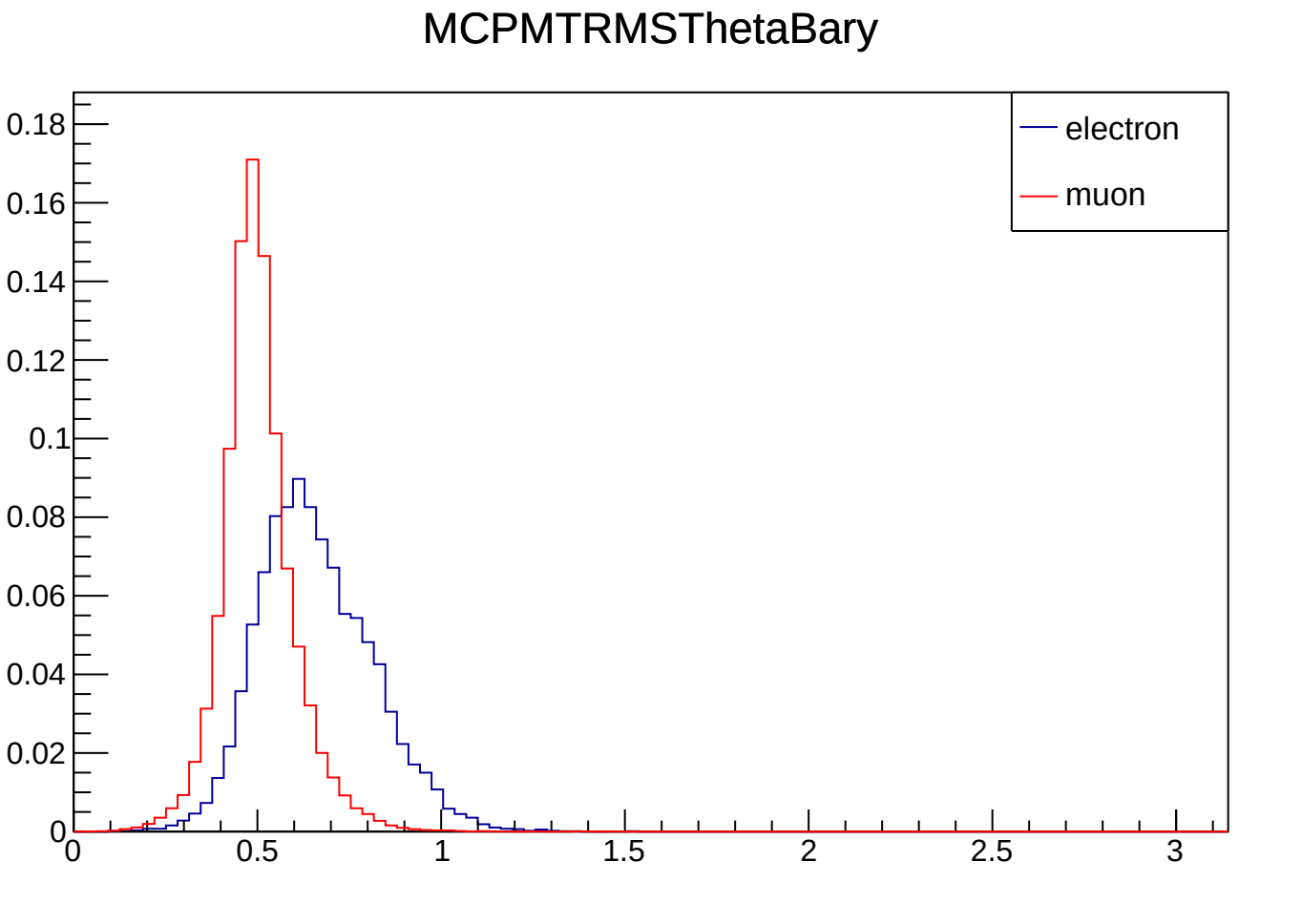
2.5
3


MCPMTRMSThetaBary
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muon
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2.5
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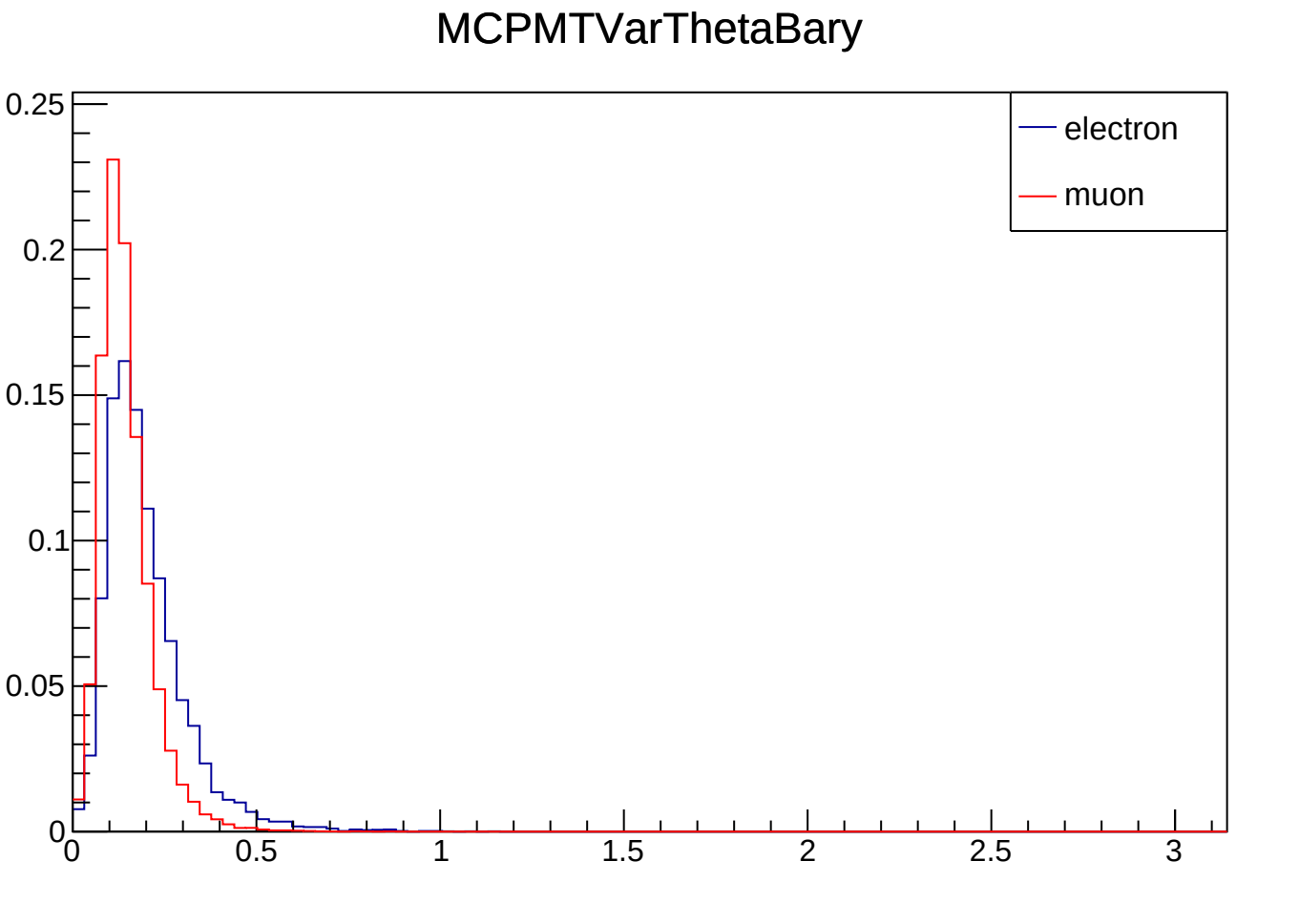
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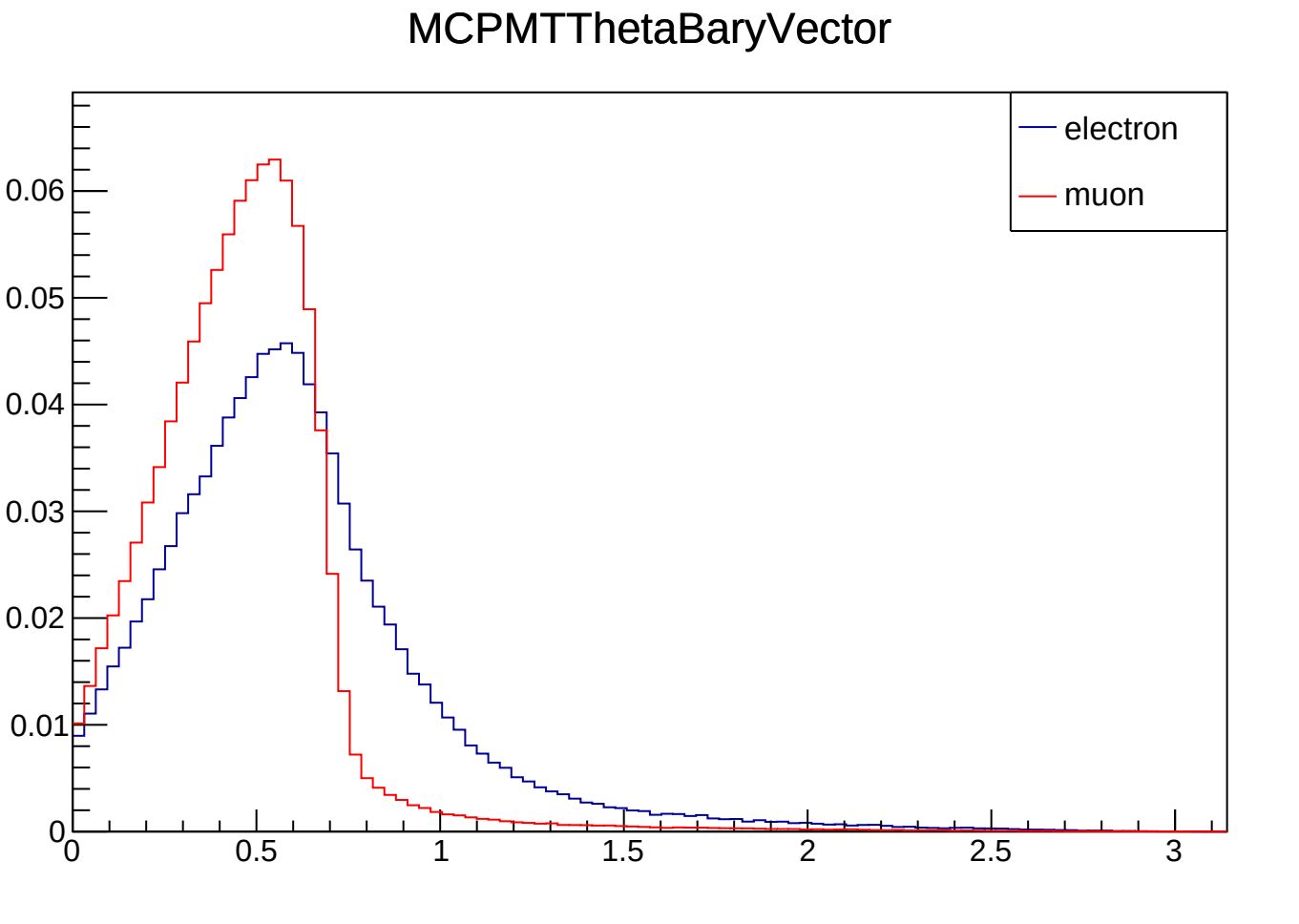
2
2.5
3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muon
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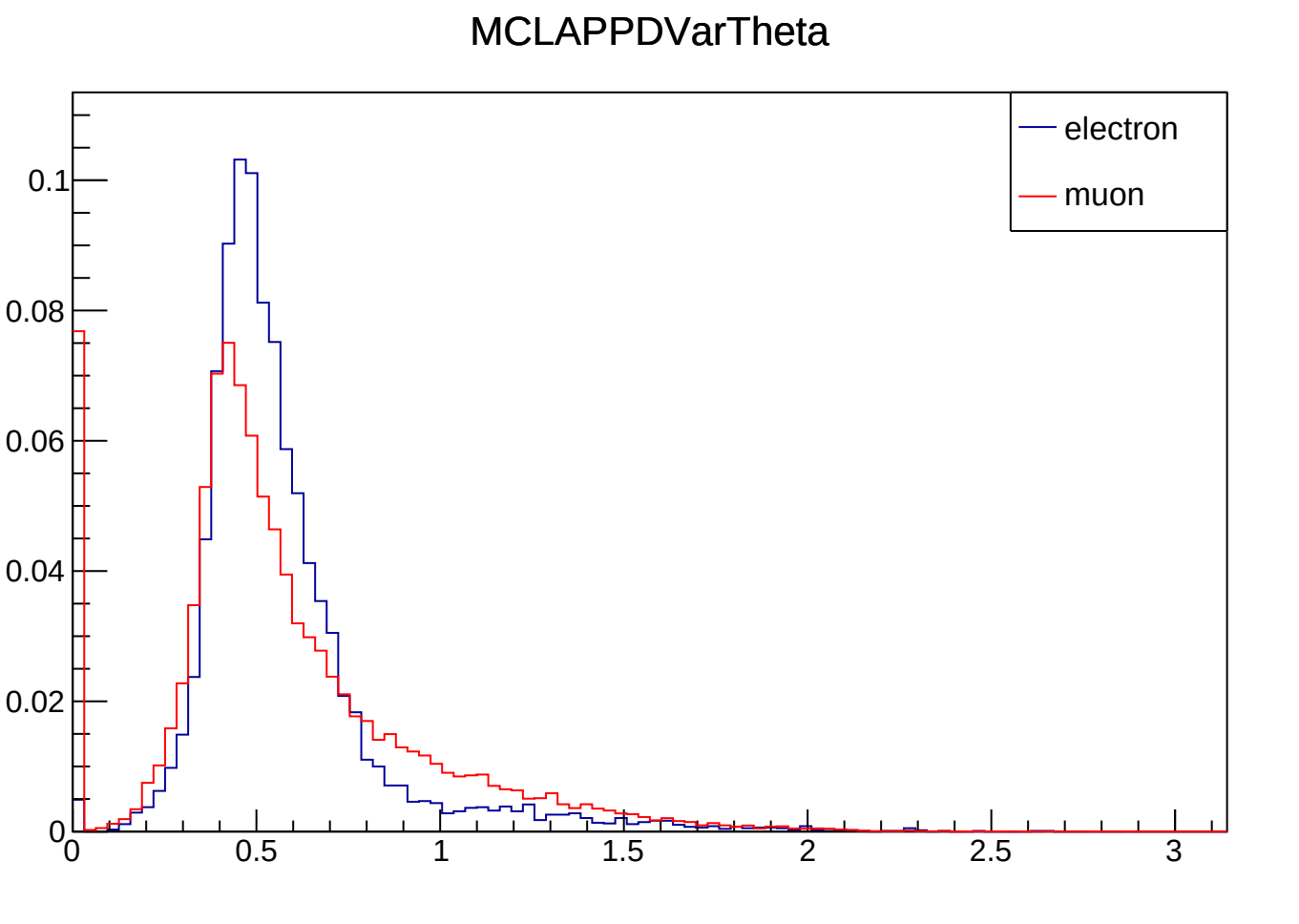
2
2.5
3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2
2.5
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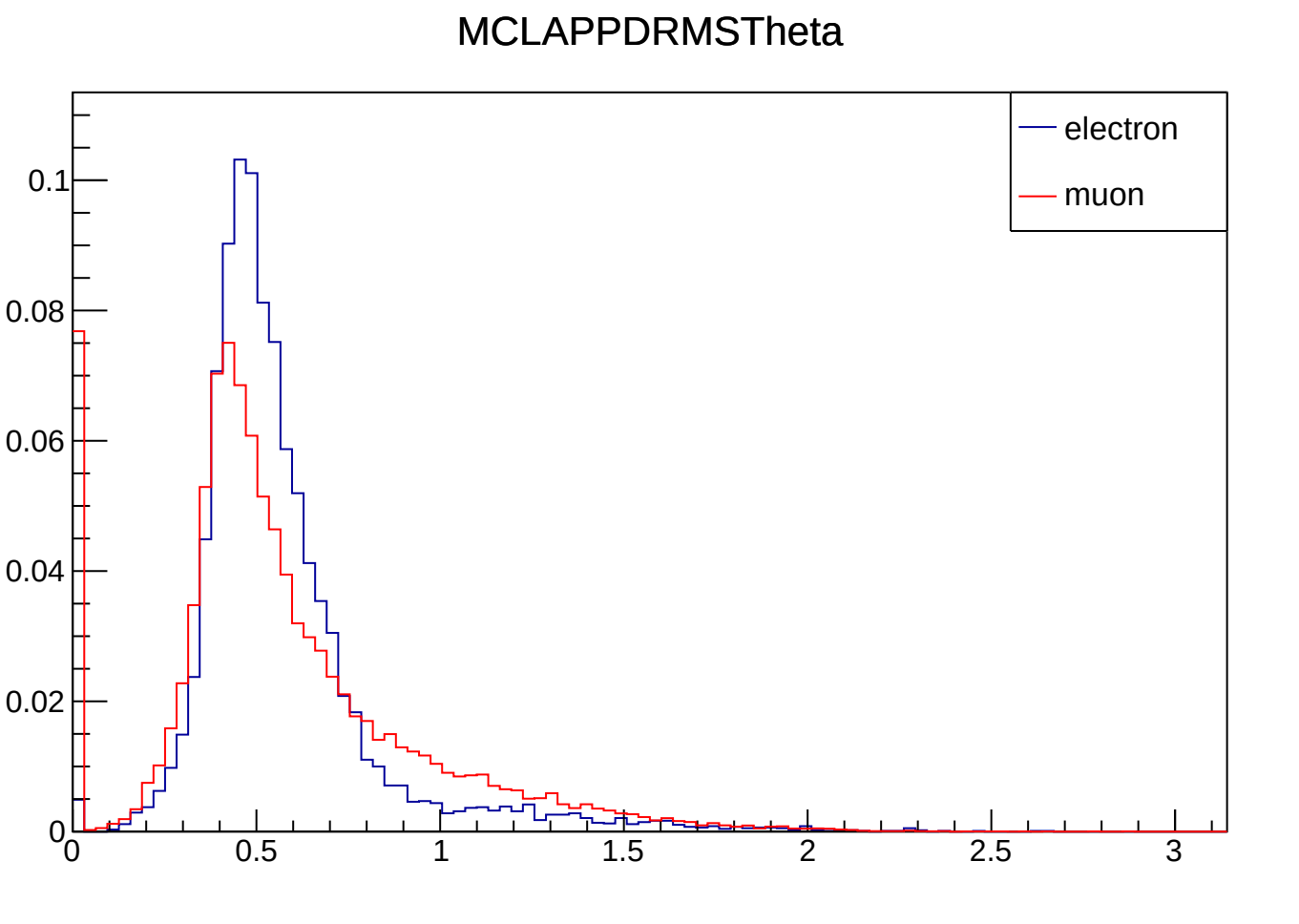
MCLAPPDRMSTheta
electron
muon
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0.06
0.04
0.02
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0.5
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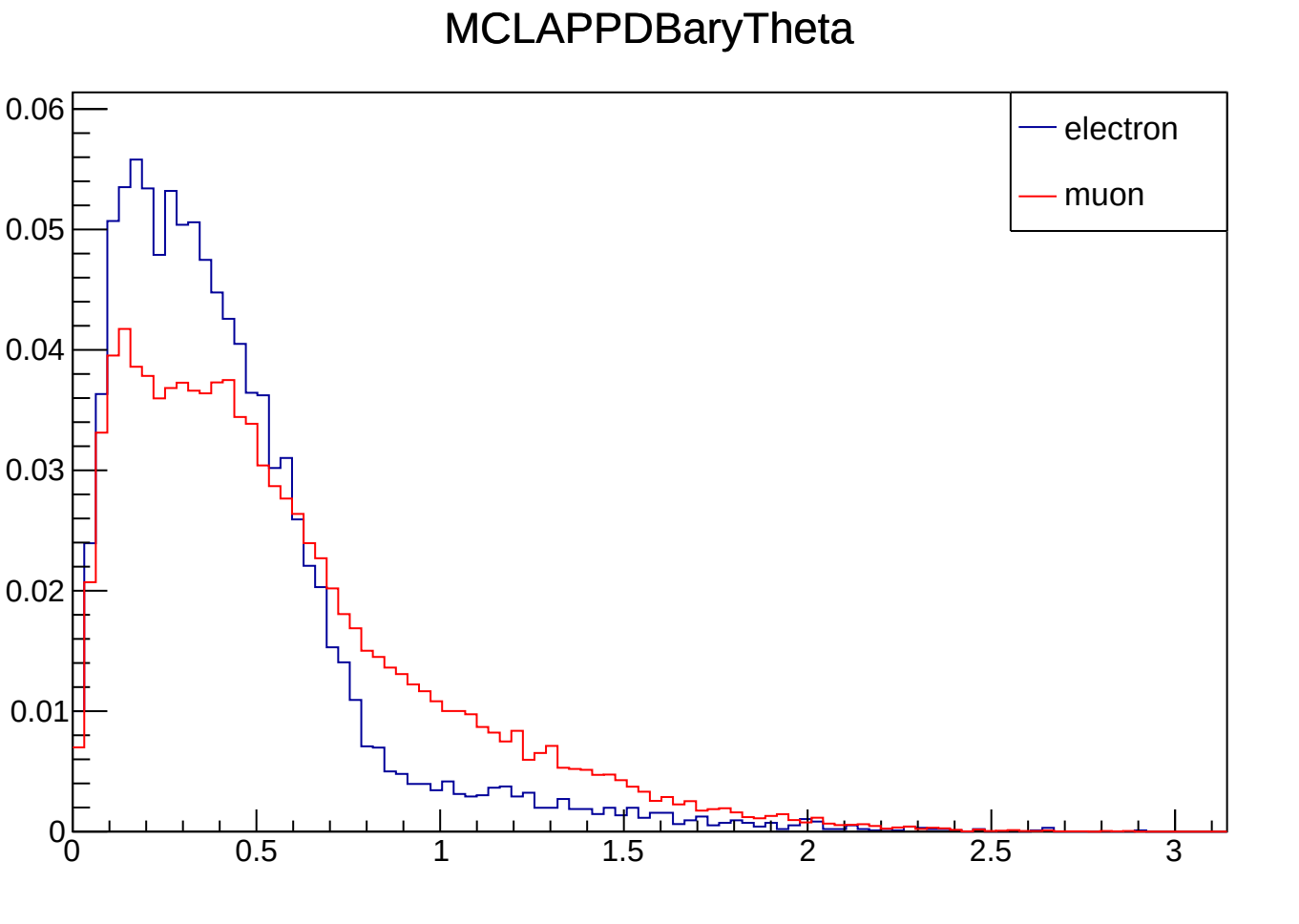
1.5
2
2.5
3


MCLAPPDBaryTheta
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muon
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0.04
0.03
0.02
0.01
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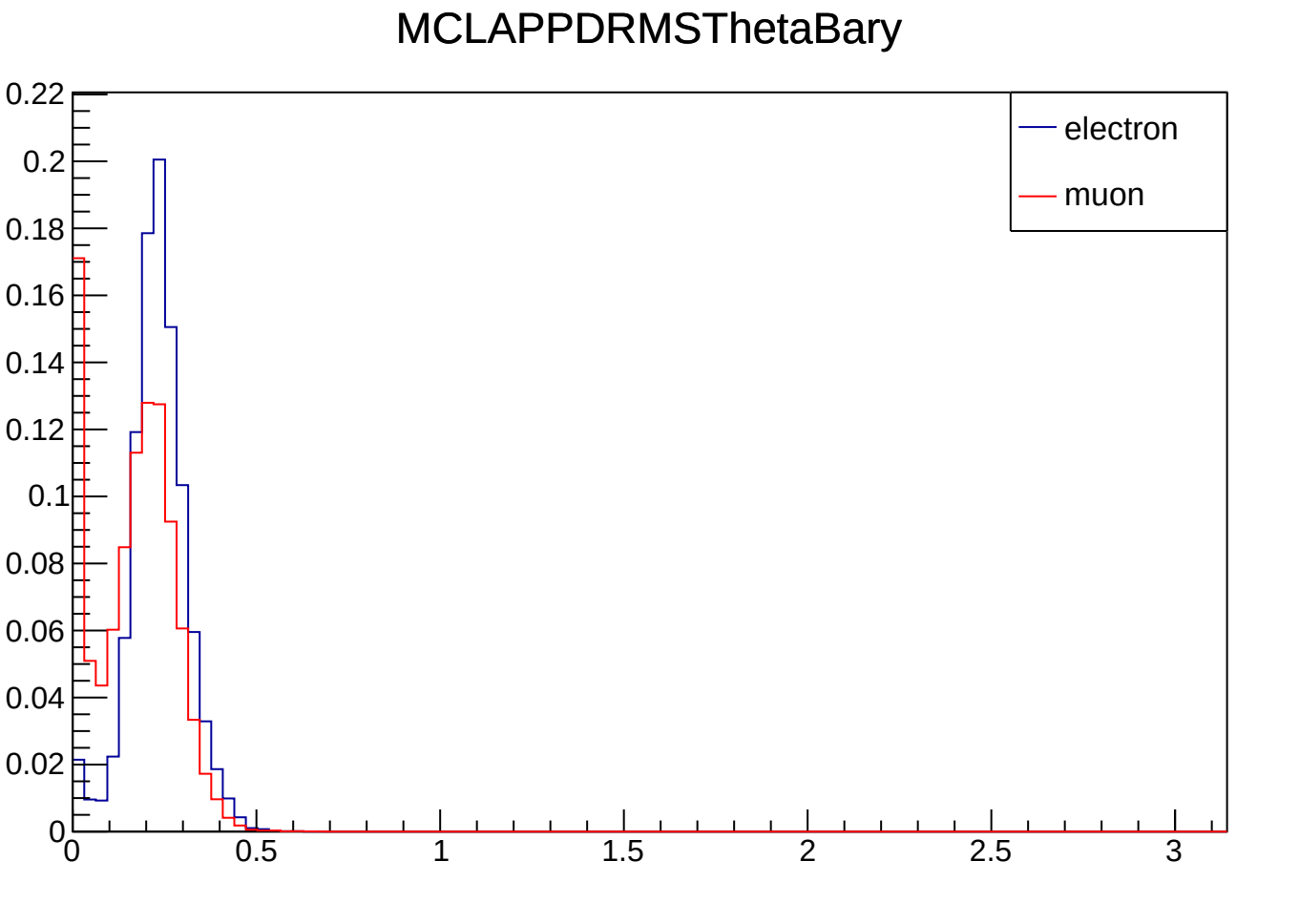
0.5
1
1.5
2
2.5
3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0.22
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0.14
0.12
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0.04
0.02
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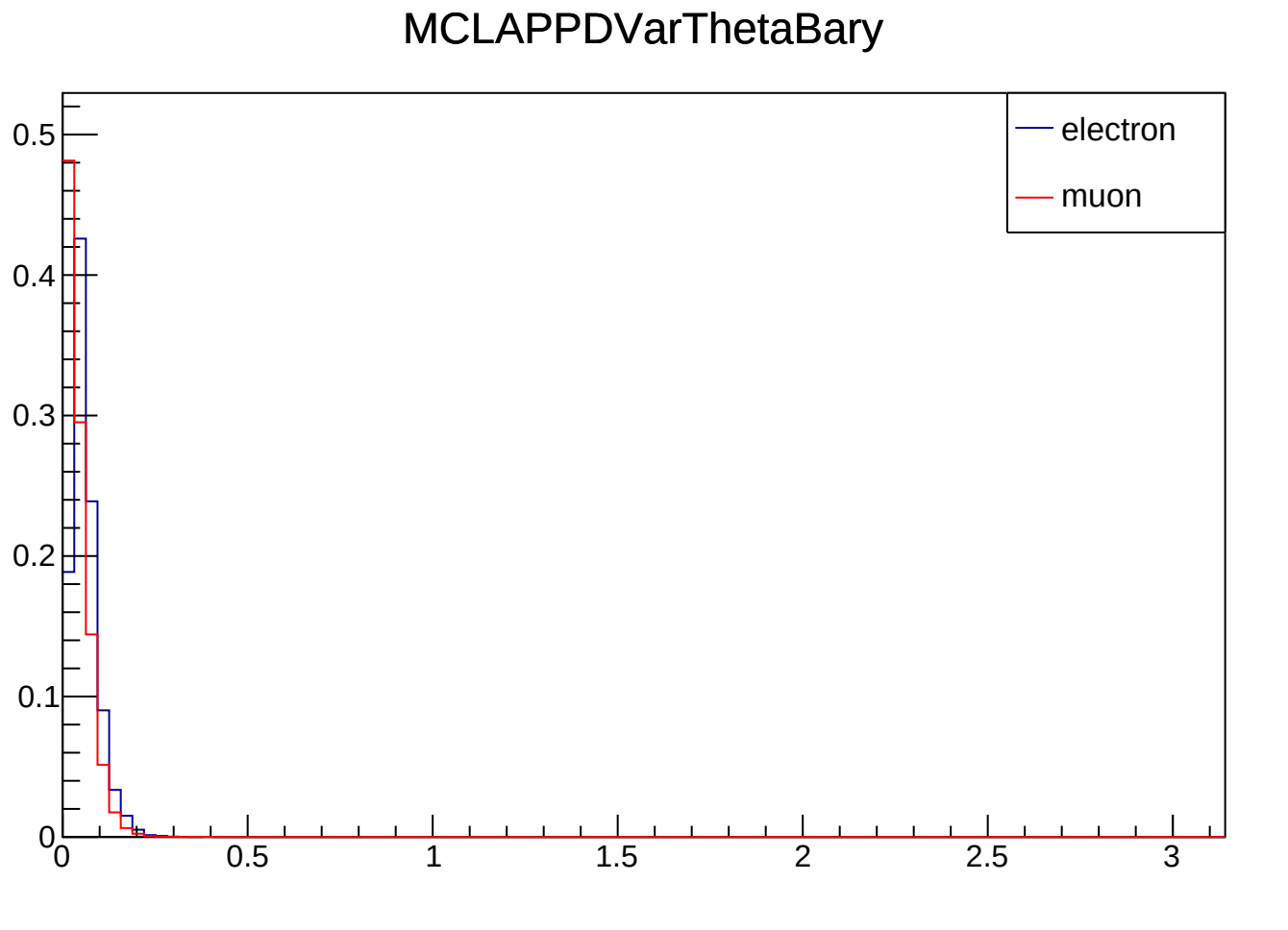
1
1.5
2
2.5
3
electron
muon


MCLAPPDVarThetaBary
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muon
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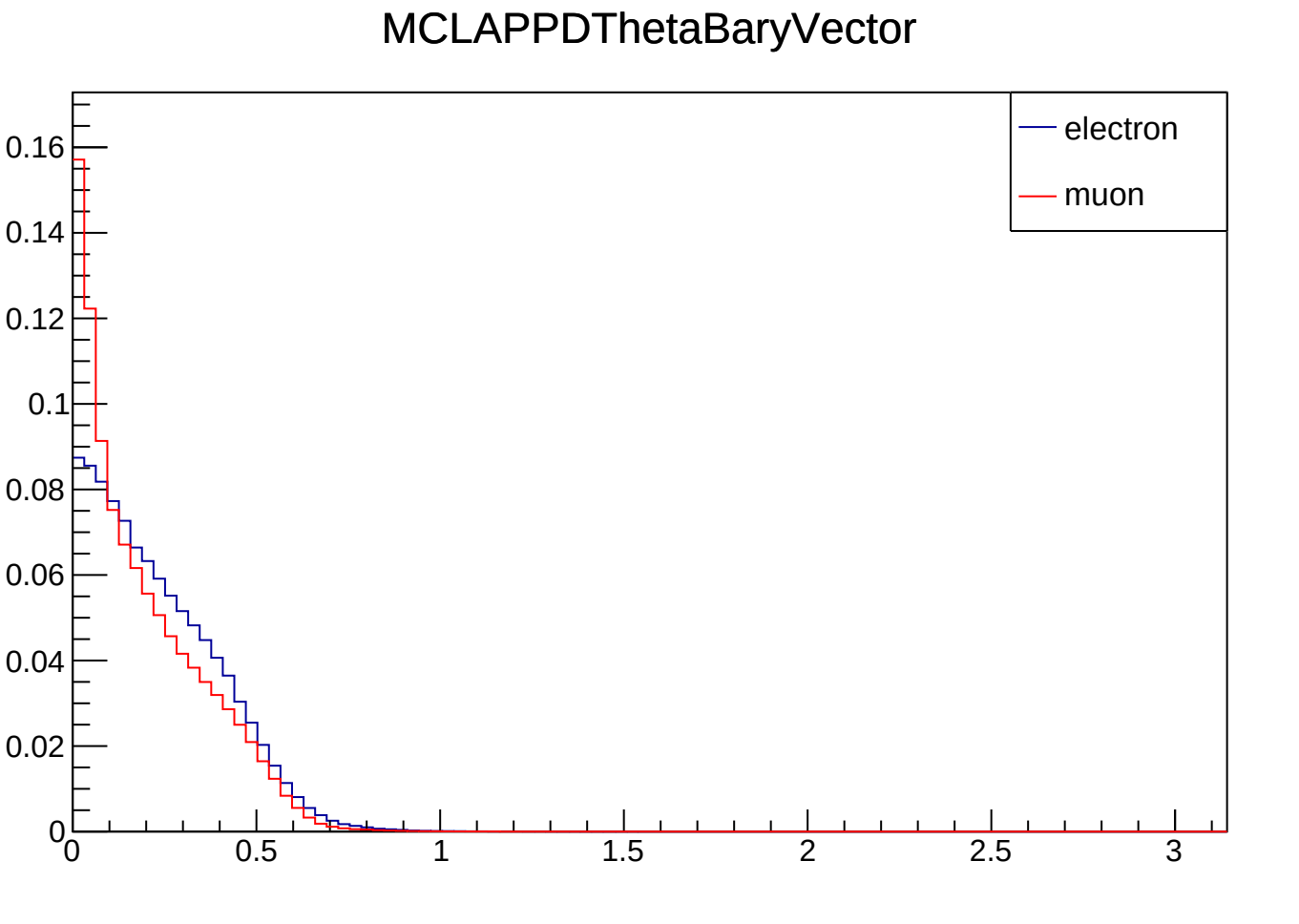
2
2.5
3


MCLAPPDThetaBaryVector
electron
muon
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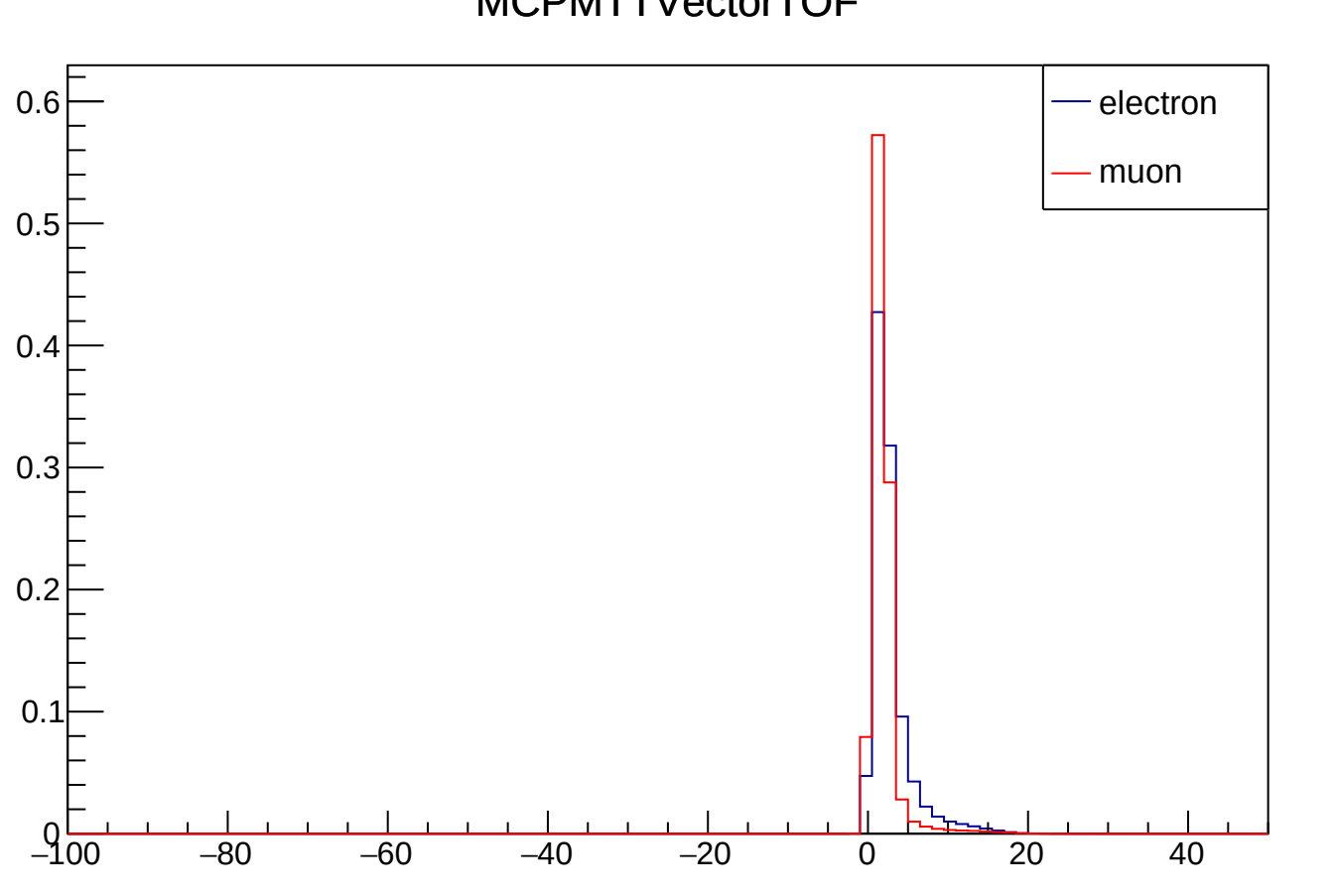
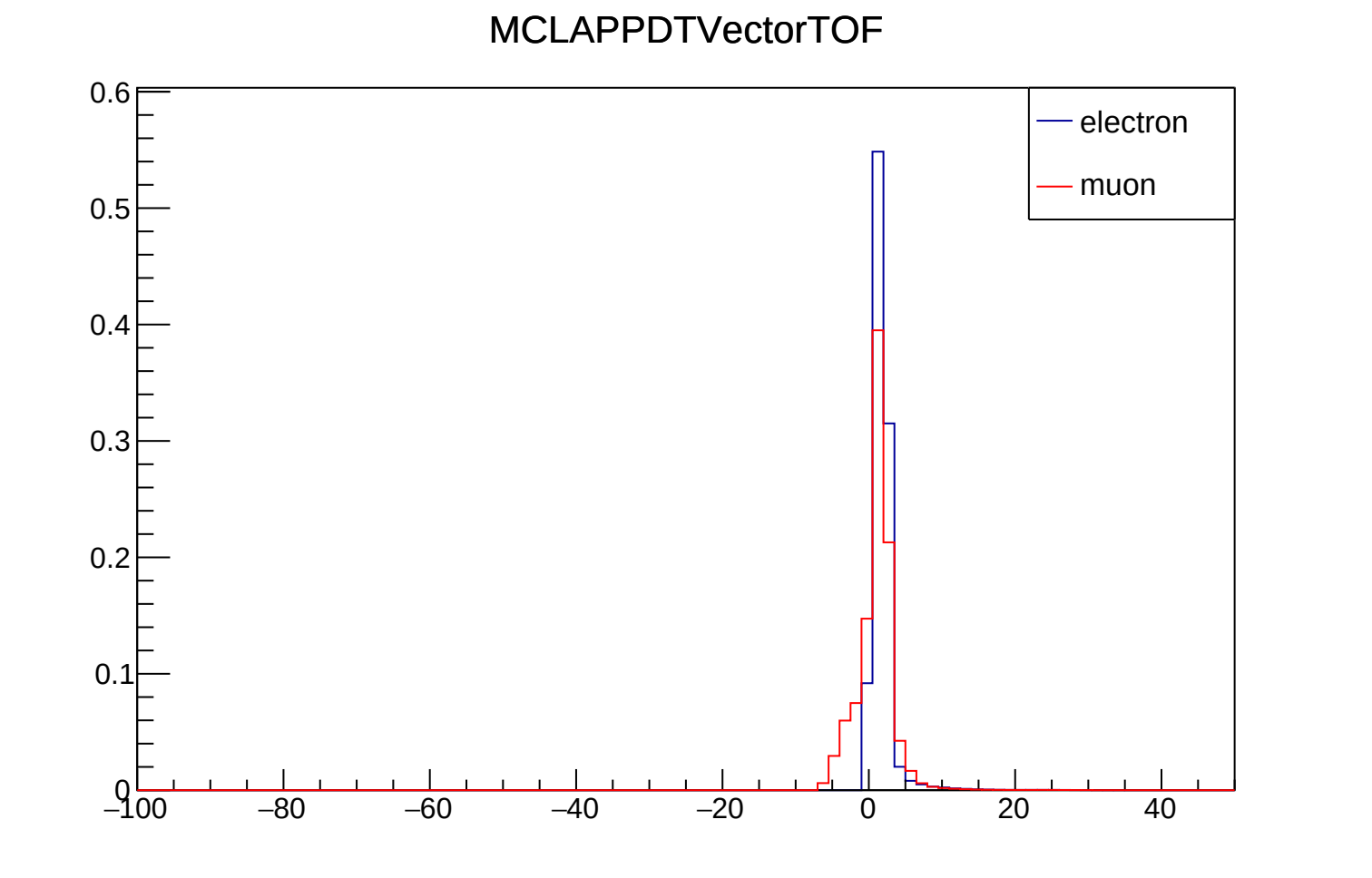
0.08
0.06
0.04
0.02
0
0
0.5
1
1.5
2
2.5
3


MCPMTTVectorTOF
electron
muon
0.6
0.5
0.4
0.3
0.2
0.1
0
–100
–80
–60
–40
–20
0
20
40


MCLAPPDTVectorTOF
electron
muon
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0.4
0.3
0.2
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0
–100
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–60
–40
–20
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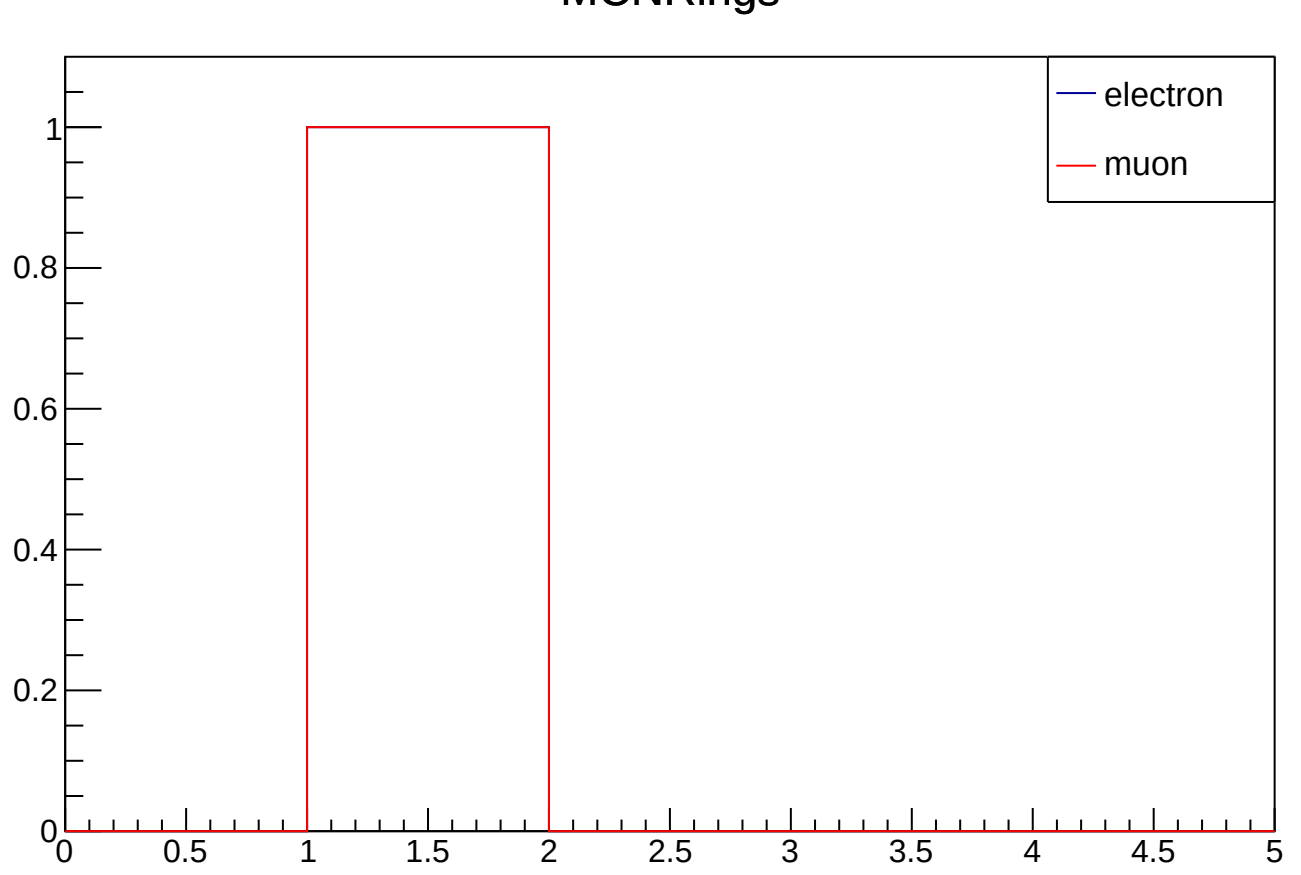
20
40


MCNRings
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muon
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0
0
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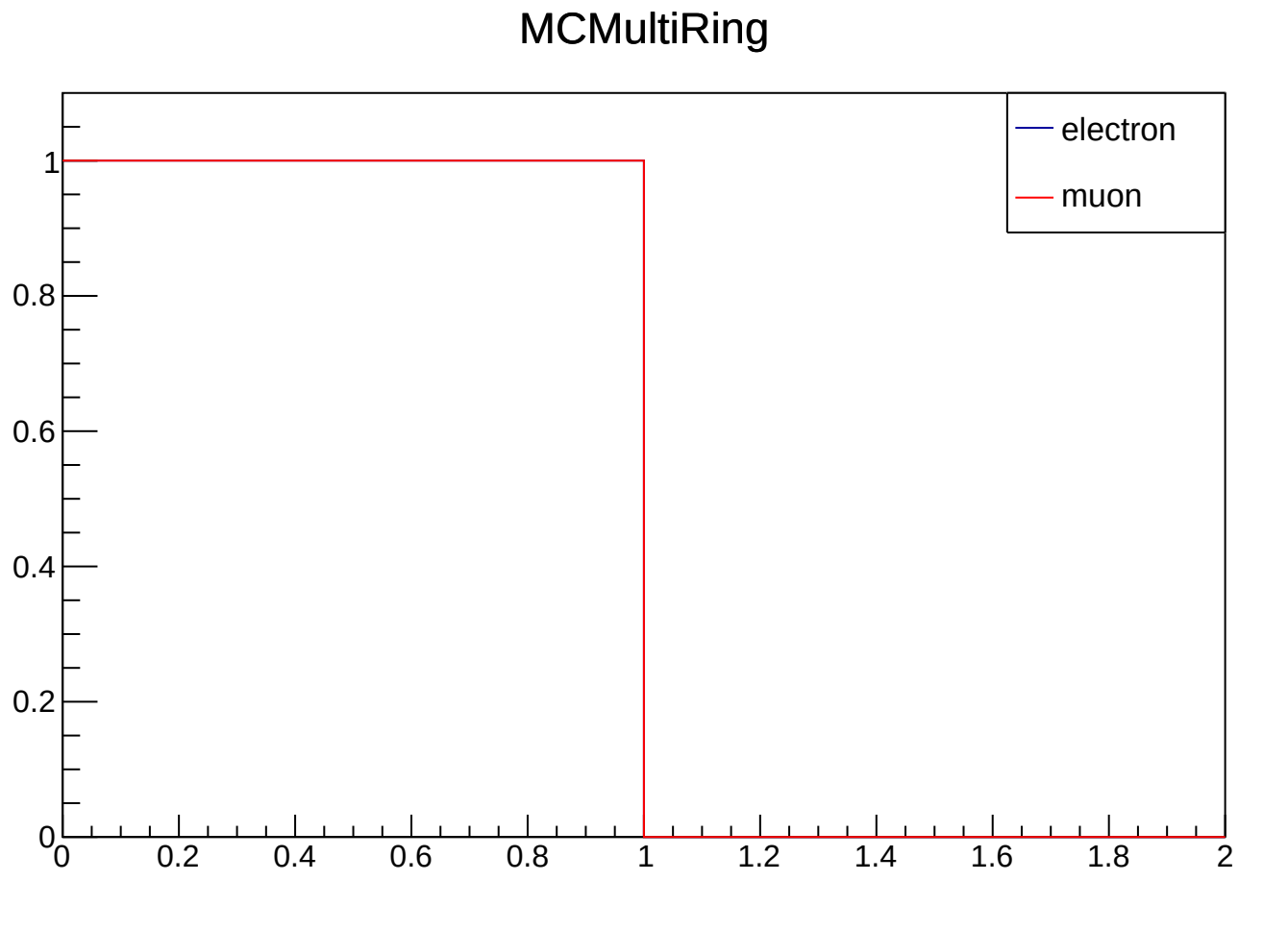
1
1.5
2
2.5
3
3.5
4
4.5
5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muon
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0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2